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IMPROVEMENT OF SMALL FRUITS BY HYBRIDIZING.

By MARSHALL P. WILDER, President American Pomological Society.

SINCE the greatly increased attention which has been paid to small fruits of late years, many new varieties have been introduced; but these have been mainly accidental seedlings. It is true that Dr. Brincklé made some valuable experiments with the raspberry, producing excellent varieties; and his example has been followed by other cultivators, with the same fruit, and also with the strawberry, producing some happy results, yet comparatively few and far between.

We would not depreciate the results of the efforts of nature, for they are too plain to be denied; but is it not probable that the excellence of what we call accidental seedlings is due to a fortunate cross of two varieties, and consequently that the chances of an improved variety from such a cross would be much greater if guided by the hand of the skilful cultivator? Some cultivators have been sceptical as to the influence of artificial hybridization; but we cannot doubt that the law of progress, by uniting the good qualities of two races, holds good throughout the animal and vegetable kingdoms, and our argument is, that the best effects are to be expected from the crossing of the best varieties. In our own day we have witnessed constant improvement in our large fruits, such as the apple, and still more in the pear, which we think justifies us in anticipating an equal advance by the intermarriage of the improved varieties of small fruits, if but the same attention is given to them as to the large fruits.

Take the Wilson strawberry, for instance, famed for its productive-

ness, firmness, and good carrying properties, but too poor in quality, and of bad color, and needing to be supplemented by some variety possessing the fine color and quality in which the Wilson is deficient. Who can doubt that skilful crossing of two such varieties would speedily give us such an improvement in the Wilson as many years of haphazard sowing would fail to produce? In the first case, we should know just what tools we were working with; in the second, we should be dependent wholly on chance. The flavor of the Hautbois strawberry is admired by many persons, but all the varieties of that class are of small size. There is no doubt, however, that by crossing with the larger varieties new sorts may be produced combining this peculiar flavor with large size of fruit, as well as other desirable qualities.

As another example, suppose the Hornet raspberry — a large, firm, and handsome variety, but often deficient in flavor — were crossed with the Brincklé's Orange — a variety of first-rate excellence, but having a soft berry. This combination would probably overcome the latter difficulty, and produce a sort, on the whole, better than either. In a hundred seedlings we might find some combining the softness of the Orange with the deficient flavor of the Hornet; but there would be an equal chance of an equal number combining the most desirable qualities of the two parents, giving us a variety at once large, handsome, firm, and of fine flavor.

We think there is no more promising field for improvement among our small fruits than with the gooseberry, of which we have but few varieties adapted to our climate. These are all accidental seedlings from our native species, and generally of small size; but we know of no reason why we should not improve them in size and flavor by crossing with the English varieties, while retaining the hardiness and freedom from mildew of the natives.

In regard to the currant, we now have varieties of good size; but the larger sorts are not equal in flavor to smaller kinds like the old Dutch varieties. We want to combine with the size of the Cherry and Versailles the quality of the White Dutch and other sweeter kinds, thereby producing a variety which shall be fitted for the table without the use of sugar.

We might prolong these remarks by allusion to other small fruits; but having established the principles, we leave them to be applied to the other species by our readers. Why may we not secure varieties of these small fruits which shall be as universally popular as some of those of the large fruits, such as the Bartlett pear? It is possible; yea, not only possible, but probable. It is more than probable: it is certain Try, try again; work on, and you will win.

NOTE ON GRAPES AND GRAPE CLIMATES.

By WILLIAM SAUNDERS, Department of Agriculture, Washington, D. C.

THE recorded observations on the culture of the grape point conclusively to two important facts: first, the necessity of a closer determination of the species from which each particular variety is derived, and, secondly, the unquestionable superiority of the climatic conditions of certain localities for the healthy growth of the plant.

Concerning the different species, and their peculiarity of growth, exemption from, or liability to, diseases, the character and value of their fruit for particular and definite purposes, it is well to recognize that the varieties of *Vitis Labrusca* are very much subject to leaf blight, and that this is more particularly applicable to the finest fruited sorts; also, that the fruit is more liable to the disease of rot than is that of any other native species; further, this species furnishes fruit the least valuable for wine, although, for table use, fine fruit is produced when allowed to reach a proper degree of maturity.

Tested by the above-mentioned qualifications, we find that the *Vitis cordifolia* is a species possessing great hardihood, and adaptability to grow and fruit well under almost any condition of climate or locality within its range of latitude; producing fruit of much value for wine, as well as for the use of the table; rarely injured by rot, or any other casualty, and comprising more of the qualifications necessary for popular and extensive cultivation than any other native species, as at present known.

Then, again, to the *Vitis æstivalis* belong varieties of the highest merit, and of the greatest value for wine. No true opinion as to what may be produced in the line of American wines can be formed except from samples of this species. Requiring a long season and genial climate for their perfection, they have not yet been extended so widely as the varieties of *Vitis Labrusca*. Their range of successful growth not reaching into high latitudes, their culture has been limited; but it cannot be doubted, that, when the value of the species becomes more generally known, the culture of the best varieties will rapidly increase.

In the announcement of new varieties of grapes, an accompanying statement of their origin would enable us to form a tolerably correct opinion as to their intrinsic value, both in regard to the fruit, and the best localities for the plant.

With regard to the necessity of attention to the most advantageous

climatic conditions, it is enough to remark, that, where these are favorable, good crops of fruit are the rule, and that, too, even in the absence of experience in cultivation; but in unfavorable locations the application of the highest attainments in the art and science of grape culture, so far as relates to pruning manipulations, or culture and management of soil, will not insure success.

Grape culture has now reached a point from which but little further progress can be made without a close recognition of the requirements of the plant, in connection with local climatic conditions, the most important being that of freedom from heavy dews. The topographical configuration of a locality is of far more importance than its geographical formation. Where the atmospheric conditions are favorable, satisfactory results may be obtained even from poor soils, as tested by their capabilities of producing ordinary farm crops; but in ungenial climates the very best soils will not guarantee success.

Upon no other basis than the above can conflicting opinions and experiences in grape culture be reconciled.

DEUTZIA CRENATA FLORE PLENO.

By Francis Parkman, Jamaica Plain, Mass.

Since the introduction of *Weigelia rosea* and *Deutzia gracilis*, there has been no addition to our list of hardy shrubs of so much value as that of the double variety of *Deutzia crenata*. In its single form, the species had been known for a long time, and not particularly valued for ornamental purposes, as it resembles the familiar *Deutzia scabra*, and is in no respect superior to it. The advent of the double variety was, therefore, a surprise. To our thinking, there is no shrub more beautiful. We hear from some quarters complaints that it is a shy bloomer; but with us it has always been a mass of flowers in its season, and that with no particular care or attention. It needs only a tolerably good garden soil, and an open, sunny exposure. Under these conditions, it grows rapidly, and covers itself in June with clusters of flowers, perfectly double. Their color is white, faintly shaded with a delicate pink. A variety has lately been introduced under the name of *D. crenata purpurea fl. pl.*, in which this pink shade is somewhat deeper, and slightly touched with purple.

The habit of the shrub resembles that of *Deutzia scabra*, though we have never seen it so large. The largest that we know is about six feet high, and last June it was white with bloom. It is about as hardy

as *Deutzia scabra;* that is, it bears a New England winter without risk, though the tips of the shoots are sometimes killed, and entire shoots now and then weakened by frost, so as to retard their vegetation. We never knew the bloom to be destroyed by the severest winter; and

DEUTZIA CRENATA FLORE PLENO.

where the soil is not very wet and cold, all mischief may be prevented by simply tying the tops together like a fagot, so that the shoots protect each other. Even this precaution is generally superfluous. This, like other Deutzias, may be propagated with the greatest ease by cuttings.

MILDEW OF THE GRAPE VINE.

By Edward F. Underhill, Brocton, N. Y.

The minds of grape-growers have been much exercised in reference to the diseases which, during later years, have attacked the grape vine of America. They have, in some localities, and with certain varieties, rendered the profits of grape culture uncertain, and the results even hazardous. Many theories have been propounded to account for the abnormal manifestations on the vine, and each theory has found those who have produced facts to overturn it. The result is, that to-day we are very far from being able to explain the causes of the morbid growth.

The fungus commonly known as "mildew," and the disease called the "brown rot" (which latter has been so especially hurtful to the Catawba vine), have been usually regarded as distinct. But Mr. W. J. Flagg, I believe, regards them only as different phases of the same unnatural condition of vegetable growth. I am not prepared to either affirm or deny the correctness of his conclusions. With a commendable and intelligent zeal he is seeking to enforce the necessity of applying remedies to check the increasing tendency to disease in our vineyards, and he, more than any other writer, has brought to the knowledge of vineyard proprietors the facts connected with the appearance of the *oïdium*, or mildew, which for many years was the scourge of the European vine, and the theory and methods of applying sulphur as the most successful remedy which has been used abroad to stop its ravages. But, from his writings on this subject, I infer that Mr. Flagg assumes the mildew on the American vine to be identical with *oïdium* of Europe; and that view, I believe, has generally been entertained by those who have discussed the subject. With that conclusion I take issue.

Last year Mr. Flagg, in his delightful work on European vineyards, printed a translation of the Manual for the Sulphuring of Diseased Vines and Results, written by M. Marès, an extensive vineyard proprietor, of Montpellier, France. In it were included drawings, showing the appearance of the *oïdium* under the microscope, and for the first time the grape growers of this country were furnished with data by which they could determine whether the fungus growth on their vines was the same as that which had brought such disaster upon the vineyards of Europe. To determine this question to my own satisfaction, I proceeded last season to make a series of microscopic observations

of the mildew, and the result has demonstrated that the two fungi are different. This year I have repeated the investigation with the same result, and the drawings of the magnified fungus, made in successive seasons, show precisely the same characteristics.

Figure 1 shows the appearance of the fungus at an early stage of its development.

Fig. 1.

Figure 2 represents its appearance when further advanced; the last showing all the spores in a full stage of development.

Fig. 2.

To indicate the correctness of my conclusions, I add in Figure 3 copies of the microscopic presentation of the *oïdium* as found on page 216 of Mr. Flagg's European vineyards.

I found on the leaves of a garden flower last season a heavy white fungus growth, so thick, indeed, as to wholly obscure the color of the leaf. This, when placed under the microscope, resolved itself into oviform fungi, precisely like the drawings of the *oïdium* which are reproduced above.

My microscopic investigations have been attended with some difficulty. A large magnifying power of my instrument was requisite to resolve the fungus into its parts, and examine them by detail. The general appearance of the growth, whether on leaf or berry, was that of jungle of colorless transparent vegetation, and the nicest manipulation was necessary to get a single stem so placed under the lens, that,

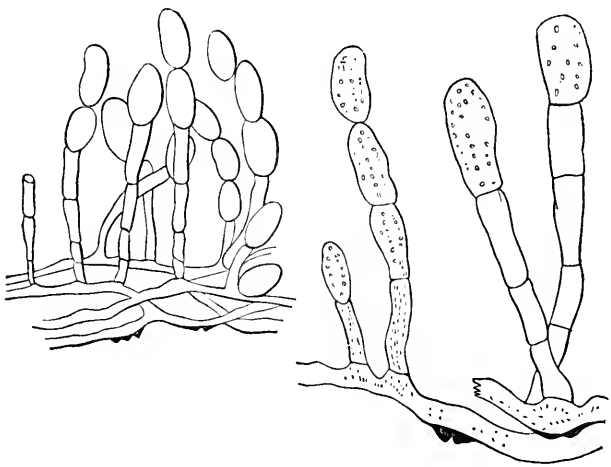


Fig. 3.

even with facilities for delicate changes in the adjustment of the focus, the whole of its length could be passed before the enlarged vision.

I have not prepared this brief article with any purpose of disputing the method of treatment advocated by Mr. Flagg, because there is a difference in the fungi. On the contrary, if sulphur be not the remedy, I do not know what can be relied upon.

July 31, 1870.

HEATING GREEN-HOUSES.

By W. C. Strong, Brighton, Mass.

Plants do not keep warm by exercise. We have no method of preserving the excessive heat of the sun, as we do the cold of winter, to retail in small crystal blocks during the hot days of summer. During the stormy days of winter the sun's rays are an uncertain quantity,

and throughout the long nights they are a minus quantity. We may get some help from the heat of fermentation; yet its power is so limited, and its expense is so greatly above that of fire heat, that "hot-beds" will, in the future, be more and more strictly confined to small efforts and special purposes. At present we are almost limited to the heat of combustion for the purpose of keeping up a night temperature for plants during winter. It is a most important question how we can best apply our fire heat.

We place a lamp in the green-house, and a considerable amount of heat is given off, the total of which is retained, absolutely none going off in a smoke flue. This is perfect economy of heat. But the small amount of smoke and gas from the lamp is injurious; and when we use other materials, such as wood or coal, as a fuel, the case becomes much worse. We are compelled to provide an escape for the smoke and gas. Hence we build furnaces and chimneys. But the chimneys, if they run up perpendicularly, carry off a large percentage of the heat. In order, therefore, that more and better radiating surface may be obtained, as well as for more equal distribution of heat, we run horizontal flues once or twice the length of the house. This is a gain in both directions; yet it is very far from perfection. It also wastes a large percentage of heat, and what it does radiate is mainly at the fire end of the house. To remedy the last objection was suggested the Polmaise system of leading a column of air from the cold end of the house, through a subterranean drain, under and around the furnace, and out into the house — a simple and a wise plan of putting the air of the house in circulation, leading it from the cold end up to the fire to be warmed, and then to flow back leisurely to fill up the vacuum. It is a modification of the hot-air furnace system, by which a majority of our dwellings are now heated. But still the apparatus is very imperfect, especially as ordinarily constructed. Not to dwell upon the evil of the flow of the hot air to the top of the house, let us consider the heavy stack of brick around the furnace, and the usual heavy flue and chimney. Through such a thick covering the caloric is not freely radiated, and consequently it is, to a very serious extent, retained, and communicated to the smoke column passing up the chimney. In other words, the heat is smothered under a mass of brick, and finds an escape through the flue.

Now the water system comes in, to our great relief. It is a perfect relief on the point of distribution of heat; and in respect to economy of fuel it has been a help, for the water in the boiler absorbs the caloric

from the furnace with a good degree of facility, and carries it off to be radiated in the house. Still, it is true that, with our most popular boilers, the smoke flue continues to be quite hot when the direct draft is on, and there is still a consequent large waste up chimney. The only remedy for this evil in the ordinary iron boilers of the day, and a partial remedy at best, is this — to continue the horizontal flue, in combination with the water, in order to economize the largest amount of heat.

Looking back to the hot-air, or Polmaise, system, we can see that there is no necessity for the heavy brick furnace. Instead of it, cover the fire with a dome or arch of thin iron ; then surround the dome with an air-chamber, through which a large and rapid current of cold air becomes heated as it passes from the bottom up into and through the house. If the metal is thin, and the circulation is large and rapid, I am convinced that a large percentage of the caloric is radiated and carried off into the house. The current of air may be made so large and so rapid as to prevent the tendency to overheat the iron or burn the air. For some positions, and especially for hill-side houses, I believe a form of hot-air furnace is the most economical and the best that can be devised.

Thinness of material is a point to which allusion has been made, and it is an important point. If we must cover our fire, in order to carry off the smoke and gases, let us do it with the thinnest material possible and attain our end. By so doing we shall obtain the largest percentage of heat. It is well understood by scientific engineers that steam is more easily generated in steel boilers than in the ordinary iron boiler, and the thinner the plate the greater the ease. Bring the water as nearly in contact with the fire as is consistent with strength, reduce the amount of rust and soot to a minimum, and, beyond question, we shall extract the maximum of caloric from the fire. In this view, it seems that copper would be an excellent material for boilers. In practice, it is found to work admirably for small houses, and with great economy of fuel. There are, however, some practical difficulties in the construction of large boilers of copper, and, in order to give sufficient strength, the weight of metal will involve high cost. Still, it may prove to be cheapest in the end. Whatever the material or the form may be, whether hot water, steam, or hot air, observe always to cover the fire with the thinnest and most perfect conductor of heat, consistent with strength and cost.

NEW VARIETIES OF GLADIOLUS.

By George Such, South Amboy, N. J

Some very good judges in horticultural matters are of the opinion that no further improvement in the gladiolus need be expected, and they state, as a special reason for this opinion, that among the many new varieties sent out last season, not one can be considered an improvement on those in the same style already in our collections. There is certainly some truth in this statement, but a slight examination will show that it is not entirely true.

Without attempting to discuss the merits of all the novelties of last year, I may ask whether, among all the shades of rose, we have any gladiolus that can compare with *Rosea perfecta*, or any white, in the style of *La Candeur*, that is as good. *Madame Desportes*, sent out in 1868, is very nearly pure white, and almost the perfection of elegance; but La Candeur is a novelty of such great merit, that no other white gladiolus can fill its place. Moreover, its flowers do not readily wither in the heat of the sun; and this I consider a matter of great importance in our climate. Most persons who have grown the much-praised old variety, *Reine Victoria*, must have noticed, I think, that the large white flowers are fine when expanded on a cool or a cloudy day, but are withered after exposure to the hot sun for even an hour or two.

Many have this same fault — among others, *Fulton*, a very brilliant vermilion red, and in other respects admirable. If some one should succeed in getting a flower of the same color and shape as Fulton, but of more enduring substance, he might justly claim that he had an improvement. But any one who has grown a large collection of the named varieties of gladiolus will readily perceive that many of the best of them are susceptible of great improvement. How grand, for instance, would be a flower combining the superb scarlet of *Lord Byron* with the perfect shape of *Shakspeare* or of *Meyerbeer*, or if the peculiar nankeen yellow of *Calendulaceus* could be had with size and fine shape, or a *Bernard de Jussieu* with the flowers all facing one way, instead of standing back to back! *Le Poussin* is very beautiful as it now is; but how much better would it be if the flowers were about twice as large! and how great an advance in the yellows it would be if we had a larger and finer *El Dorado!*

We have in the gladiolus various shades of red, scarlet, and crimson, with a distinct line of white running through the middle of each petal. What a charming addition to our stock would be a white flower, with a rose or scarlet line in the middle of each division, or a white flower with a broad throat of rose or violet! In the blooms of some Cattleyas there is an unspeakably beautiful color, fresh and charming to the utmost — a sort of delicate lilac, with the faintest blush of pink. We have an approach to this color in the gladiolus *Noemi;* we may some day reach the very tint itself.

These few hints will tend to show, it seems to me, that the gladiolus is far from having "said its last word," as the French express it. Years ago it was thought no improvement could be made in the fuchsia and the pelargonium; and yet both these flowers are immensely in advance of what they were in old times.

DWARF WAXEN-PODDED, WHITE-SEEDED BEAN.

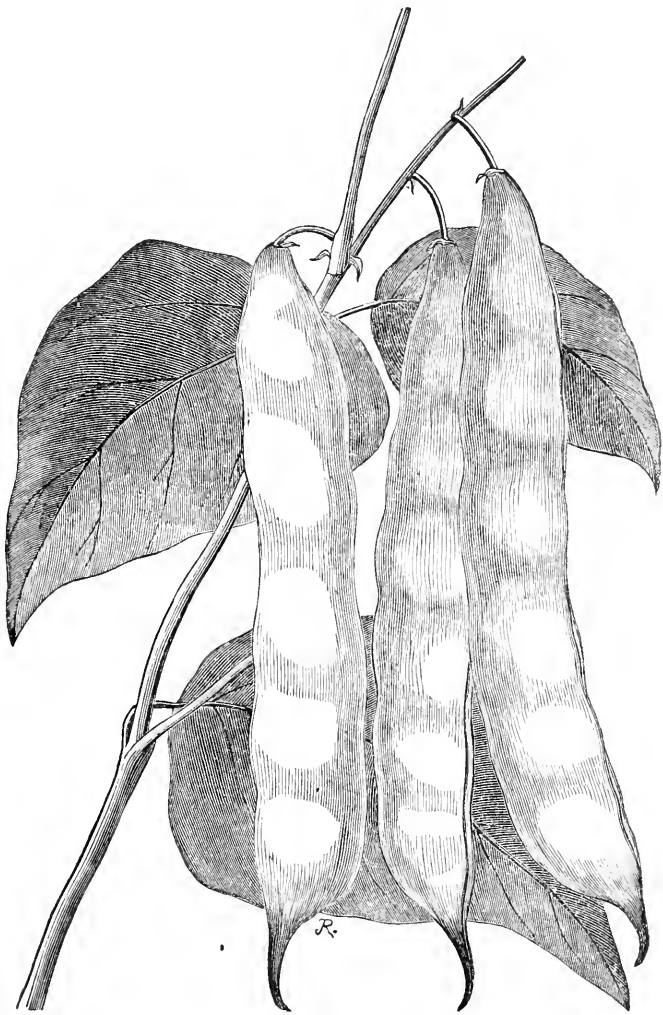
By Fearing Burr, Hingham, Mass.

In the spring of 1869, Ernst Benary, a seedsman at Erfurt, Prussia, forwarded to some of our principal seed warehouses a small package of the seeds of this new bean, which, after a trial of two seasons, proves to be a most valuable acquisition. It is decidedly a dwarf. Though of stocky habit, it seldom attains a height of more than ten or twelve inches. Indeed, there are few, if any, of our garden beans of lower growth or with smaller foliage. The pods are short and broad, of a delicate, waxen-white color from first to last, and contain from four to six medium-sized, roundish, *pure white* seeds.

Though described as being early, it can scarcely be regarded as a "first early." Planted the middle of May, the pods were sufficiently advanced for plucking during the second week of July, and the crop was harvested the middle of August.

The size of the plant considered, it is not surpassed by any sort now in cultivation in point of productiveness. In a trial growth the branches were so laden with their burden of handsome, spotless pods, that they often brought the plants to the ground. Aside from the beauty of color, these pods have the same crisp, fleshy texture and delicate, marrowy flavor for which those of the Indian Chief and other waxen-pod sorts are so much esteemed, while for shelling green, or even for use when

ripe, it is quite equal to the best of the kinds now found on our tables. The variety is a great advance on the kinds most commonly grown



DWARF WAXEN-PODDED, WHITE-SEEDED BEAN.

among us, and will not fail to come into general cultivation. Every dwarf, and almost every running waxen-podded bean introduced prior to this, has the defect of producing colored seeds.

THE LAWRENCE PEAR.

By Parker Earle, South Pass, Ill.

I lately asked a pear-growing friend to name the two most profitable market pears. He promptly replied, "Bartlett and Lawrence." I indorse my friend's opinion, only changing the statement to "Lawrence and Bartlett." Undoubtedly the Bartlett is to-day the most popular pear in America; but its great popularity seems to be threatening the ruin of its profitableness. I judge that fully one third of all the pear trees planted in this country are Bartletts. Within my personal acquaintance the proportion is still larger. The effect is even now being felt in the depression of prices during the season of this variety. The great quantity to be hereafter thrown on the market, and at a time when peaches are the most abundant, gives promise of low prices for all varieties during its season.

So it seems to me that the pear likely to be the most remunerative to the grower a dozen years hence will be found among the later varieties. My own experience and observation every year shortens the list from which this "best pear" must be taken. I cannot now name a half dozen kinds which, in our climate and soil, answer the most essential requisites of good market pears. With me, the Lawrence, at present, heads this list.

As a tree, it is one of the two or three best. It is a fair, compact, but not extravagant grower; it is very hardy in winter, needs very little pruning to make a good form, and is as free from blight as the best. But a more important point is its persistence of foliage. In this respect, I do not know its superior. For us in "Egypt" this is becoming the very first question regarding pear trees. To-day nine out of ten of my experimental varieties are as leafless as in winter, and many of our hitherto trustworthy kinds are this year badly defoliated. But the Lawrence trees retain their leaves almost as perfectly as the oaks.

In respect to quality of fruit, I don't know how I would have the Lawrence improved, though it may be too sweet for some tastes. It is uniformly of a rich, sweet flavor, equalled by none in its season, — possibly excepting Dana's Hovey, — and surpassed only by the Seckel in any season. It never rots at the core. It is an excellent keeper. It colors finely, and has a handsome form, and though only of medium size, it is as large as a pear ever need be for good looks and convenience; and yet it will not satisfy the demand for simple "bigness," which so often decides a sale in the fruit markets.

Perhaps its only drawback is its more than average sensitiveness to the spring sunshine, which makes it about the first to push its leaves, and an early bloomer. Hence a crop of Lawrence will sometimes be partially destroyed by frosts which a Bartlett will endure unharmed. In favorable seasons it bears heavy crops, which require thinning.

Sept. 10, 1870.

GARDEN APPLES.

How many persons have made a careful selection of the best varieties of apples, pears, peaches, cherries, and small fruits for their small suburban gardens, and in a few years have found, to their surprise and annoyance, after all their careful study and elaborate plans, a few apple trees so overshadowing their ground as to render it worthless for anything else, or, perhaps, the whole has been monopolized by a single giant.

Now, to save others from such a disappointment, we advise them to exclude these trees from small gardens altogether. Such strong-growing apples as the Baldwin, Greening, etc., are entirely unfit for small gardens, and should never be planted in them. There are, however, other varieties of so small, or at least moderate, growth, that they may properly be styled "garden apples." First among these we place the Garden Royal. The tree is of small, upright growth, and the fruit is undoubtedly the finest dessert apple of its season (August and September); so that it is most admirably suited for garden culture. The Tetofsky is a still earlier variety, bearing very young, and making a small tree, whose stout, upright limbs are thickly covered with its delicate, waxen fruit. The American Summer Pearmain, Summer Rose, Early Strawberry, Red Astrachan, and Large Yellow Bough are all early apples, of fine quality, and make only small or moderate-sized trees. Of later kinds, that delicate little fruit, the Lady apple, is borne on a tree of upright growth, occupying but little room, and is every way proper for the garden. The Aunt Hannah is a very high-flavored apple, allied to the Newtown Pippin, and the tree is of small growth. The Golden Russets and the Hunt Russet are apples of the highest quality, and the trees attain only a moderate size. The Sam Young, an English variety, is a favorite of ours, being very high flavored, and a small grower. Of autumn apples, the Fameuse, Mother, and Jefferies are all of the highest excellence, and moderate growers. These are, with few exceptions, amateur apples, and not fitted for the orchard.

But some may wish to plant in their garden trees of smaller size than the kinds we have named, and others to include favorite varieties of

stronger growth. Both these objects may be gained by planting trees worked on stocks more or less dwarf. Seedlings from the Siberian Crabs, when grafted with the common varieties of apples, make excellent trees, which never attain great size. If smaller trees are desired, those on the Doucin (often incorrectly spelled *Doucain*), or English Paradise, may be planted, while the French Paradise makes the smallest of all. The last is sometimes apt to sucker, and plants showing such a disposition should be rejected. The stock is somewhat rough, and consequently more subject to the attacks of the borer than the ordinary apple. It should, therefore, be wholly buried in the ground, which may safely be done, as it emits roots freely up to the point where grafted; but the trees must on no account be allowed to root from the graft, else the object of dwarfing will be defeated.

Almost all apples thrive on dwarf stocks; but we have found some succeed better than others, among which are the Early Harvest, and all the summer apples named above, the Gravenstein, Porter, Summer Rambour, Duchess of Oldenburg, Maiden's Blush, Fall Harvey, Hubbardston Nonsuch, Fallawater, Summer Sweet Paradise, Lyscom, Murphy, Devonshire Quarrenden, and Golden Noble. These are all of excellent quality.

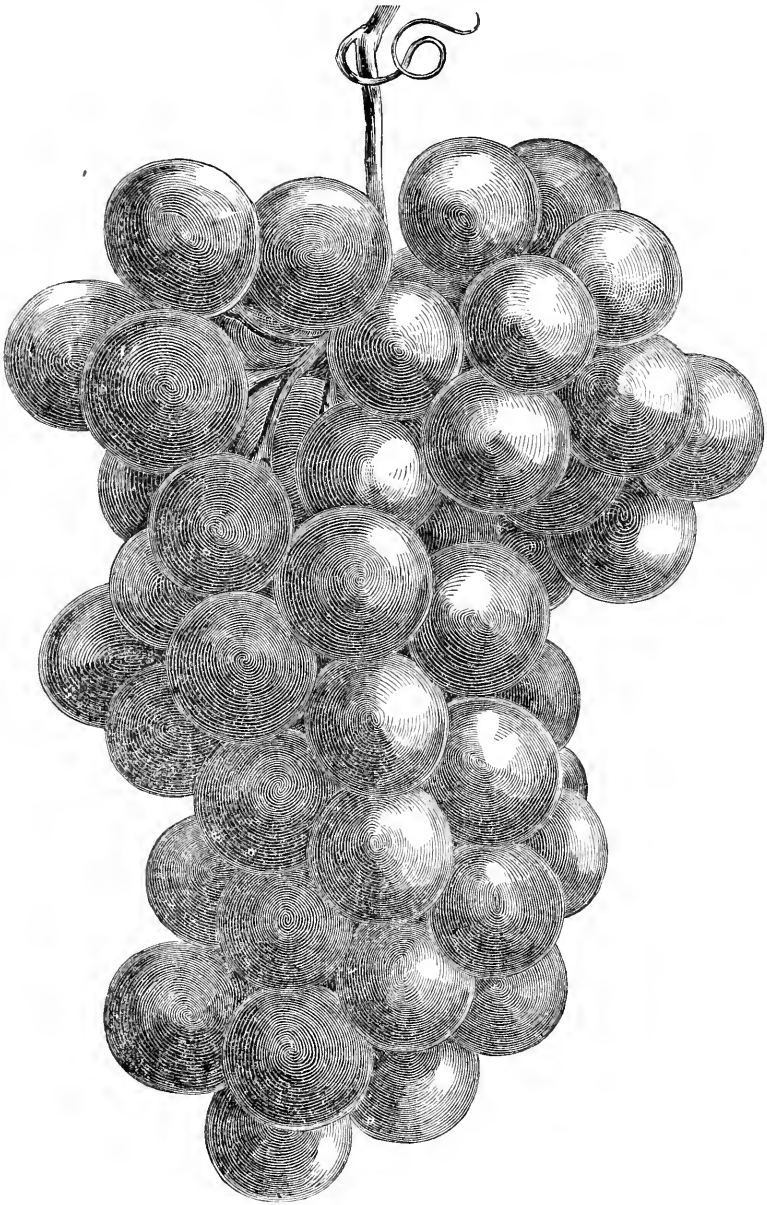
THE WILDER GRAPE (ROGERS'S No. 4).

By Edward S. Rogers, Salem, Mass.

Of the many varieties of the Rogers Seedlings thus far well tested, this number, after many years' trial, seems to be the most popular, although it is surpassed in the quality and high flavor of its fruit by some of the others, like Salem, and one or two more of the red varieties; yet considering its large size, uniform and great productiveness, and healthiness of vine and fruit, we know of no grape that we would sooner plant extensively in all sections of the country, than the one represented by the engraving, excepting, perhaps, the Salem, which being of a different color, would not be quite so popular with some as a black grape.

As usually grown here, the Wilder fully equals in size and beauty, and is hardly distinguishable in appearance from good specimens of Black Hamburg, grown under glass, and being early and superior in quality to most of the dark-colored or black grapes generally cultivated, is probably, from the experience of many cultivators during this and former seasons, one of the most reliable varieties for extensive planting

of all the seedlings under notice. The vine is vigorous, healthy, hardy,



THE WILDER GRAPE (ROGERS'S NO. 4).

and very productive; bunch large, shouldered, and well set; berries very

large, inclining to oval in form; skin of medium thickness, black, covered with a blue bloom; flesh tender, with a sweet, rich flavor; ripe this season by the middle of September in the latitude of Boston.

LEAVES FROM MY GARDEN JOURNAL.

By Priscilla Primrose.

I don't think that the writers on floriculture can insist too strongly upon the necessity of a frequent stirring of the soil about plants. Not long since I listened to the lamentations of a lady friend over her failures in the flower garden.

I accompanied her to the scene of her discomfiture, and found the ground about her poor sickly flowers baked so hard that actually I could make no impression upon it whatever with a tolerably sharp stick that I picked up instinctively, and with which I began poking about the poor things. And yet she was so unreasonable as to expect tender seedlings to penetrate that stiff crust, and blamed the seedsman because not one quarter of her seeds had come up.

I must say that I have much sympathy with seedsmen; people are so ready to blame them for failures that are the result of their own ignorance or carelessness.

A knowledge of flower culture doesn't come by inspiration, as so many sanguine souls seem to think.

Last spring was a very trying one to the gardener, and demonstrated the wisdom of seed beds and cold frames. I have condoled with a great many who spent dollars for seeds and have nothing to show for it; and I have always made it a point to inquire, "Did you have seed-beds or cold frames?" and the answer has invariably been, "Why, no; the seeds were all hardy, and I didn't think it necessary."

This is a great mistake; all seedlings are tender when they first come up, and should be protected until they get their third or fourth leaves, when they are ready to transplant. And most annuals are the better for being transplanted. I even transplanted my candytuft last spring, and found that it bore moving as well as most things, and indeed better than the stocks. I have come to think that any thing may be transplanted with care — even mignonette, if taken in time.

I move things about in my garden all summer. I transported an entire bed of portulaca from one end of the lawn to the other with perfect success; but I would not do it again, for I don't think it is worth the trouble.

THOROUGHNESS IN FRUIT CULTURE.

By J. A. DONALDSON, St. Joseph, Mich.

"PLENTY of room up stairs," was Daniel Webster's reply to a young man who inquired if the legal profession was not crowded. This is as true of fruit growing as it is of the law business. It is not necessary for a man to be *highly scientific*, to succeed in the business of raising fruit. Having a favorable location as regards climate and market, success is pretty sure if he puts in practice the well-settled principles of fruit culture.

It is not enough to do some things well, and to neglect others; for the neglect of even *one* thing may be the means, sometimes, of losing, to a great extent, the benefit of what has been done.

This was illustrated, a few years ago, by a neighbor, who had a prospect of a fair crop of peaches, in a season of great scarcity. When the fruit was about half grown, they were attacked by rose bugs. He was urged by the writer to jar them down on sheets, and kill them. He neglected to do so; and the result was, that his crop, which might have been saved with little expense, and brought him thousands of dollars, amounted to very little. The case of another neighbor, two years ago, also illustrates this idea. He had given his peach trees the best of culture, but concluded he would give the job of thinning to the curculio. The curculio having failed to do his duty, many trees, of some varieties, were so overloaded that the fruit was little better than skin and bone, and he was obliged to sell it at much lower prices than the fruit from trees not overloaded. Had he given some attention to the curculio, so that he could have relieved the trees without fear of the remainder dropping afterwards, and then taken off three quarters of the fruit. he would probably have had as much in measure, and from fifty to one hundred per cent. more in price.

The same gentleman, by giving close attention to the beetle, realized, last season, from two plum trees, ten years planted, sixty dollars. Plums were scarce, and his, being very nice, brought him twelve dollars per bushel. The time spent in catching the curculio, probably, did not cost him more than two dollars. Had he neglected to do this, the result would, without doubt, have been little or nothing, and he would have been ready to agree with some of his neighbors, that "*it's no use to plant plums.*"

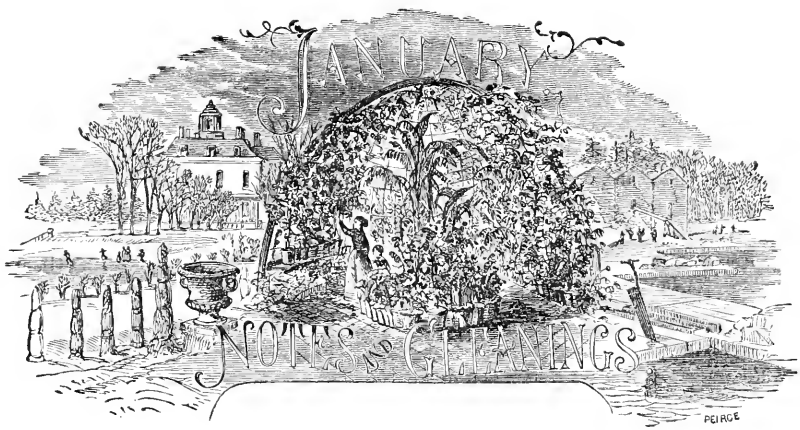
The fact is, it is the *difficulties* to be surmounted that make the

business profitable with that class of men who do everything well, and in the right time, from the planting of the tree to the marketing of the fruit. If fruit could be grown without care or trouble, the price would soon be reduced to the bare cost of gathering and taking to market.

THE JUCUNDA STRAWBERRY IN ALABAMA.

By C. H. Robey, Fredericksburg, Va.

Hearing such general complaint in our horticultural journals about the Jucunda strawberry, I have concluded to give you my experience in Central Alabama with it. All say it burns badly. I never saw this in Alabama. In October, 1867, I obtained several thousand plants from a reliable establishment, and planted them three by one and a half feet, on a rich, sandy bottom. The weather was extremely dry at the time. I applied about half a pint of water to each plant when set. The weather continuing dry until the first of December, I lost at least sixty-six per cent. of the whole. Mulching did no good. The rains commenced in December, and fell copiously. The first of January following I gave them a liberal top-dressing of old ashes, well leached. The effect was magical, and all the living plants grew off finely. I forgot to mention that I planted one thousand Wilson's Albany after the rains commenced. These also grew well. In April I gathered a fair crop, and in the fall I was enabled to replace the missing ones with strong plants taken from the runners. In July, 1869, we had an excessive drought. The Wilson burned shockingly. The leaves were red and dry, crumbling in the hand, yet the Jucundas were perfectly green and healthy all the while, and actually grew some, bloomed for the second time in August, and produced a fair crop of fruit in September. They command the highest price in the markets, in fact, no other berry has a fair chance. The hot morning sun seems to impart an additional flavor I had never before observed in this variety. The flavor was much better than in Virginia. It produced at least thirty-three per cent. more fruit than the Wilson. From my experience, I think the fault must lie in the variety of soil used by most cultivators. I think a good sandy loam, with a top dressing of leached ashes when the plants commence to root, the proper treatment for this valuable variety. If I were cut down to choice of two varieties, I should say Jucunda and Triomphe de Gand. In conclusion, I would remark, that horticulturists should give this variety "more rope," before discarding it.



THE MOST POPULAR PEARS AND GRAPES. — At the annual exhibition of the Massachusetts Horticultural Society, 774 dishes of pears were shown by 99 contributors. The number of dishes of * Bartletts exhibited was 65 ; * Duchesse d'Angoulême, 46 ; * Seckel, 45 ; * Flemish Beauty, 43 ; * Louise Bonne of Jersey, 42 ; * Beurré d'Anjou, 42 ; * Urbaniste, 35 ; * Beurré Diel, 27 ; * Sheldon, 24 ; Lawrence, 22 ; * Belle Lucrative, 20 ; Winter Nelis, 20 ; * Beurré Clairgeau, 20 ; * Beurré Bosc, 19 ; Andrews, 19 ; * Swan's Orange, 17 ; * Beurré Superfin, 16 ; Vicar of Winkfield, 16 ; * Beurré Hardy, 16 ; * Doyenné Boussock, 15 ; * Howell, 15 ; * Marie Louise, 13 ; * Doyenné du Comice, 11 ; de Tongres, 11 ; Dana's Hovey, 10 ; * Beurré Langlier, 9 ; * Merriam, 9 ; Saint Michel Archange, 7 ; Buffum, 6. The remaining 114 were made up of miscellaneous varieties.

It will be seen that these 29 varieties comprised six sevenths of the pears exhibited ; and we have arranged them in this manner, as showing the preference in regard to variety of the cultivators around Boston, where as much, or more attention has been given to the pear than elsewhere in this country. It should be observed, however, that the season may have caused some varieties to be shown more freely than in other years, the Andrews, for instance, being much finer than we have seen for many years, while other varieties may have been unfavorably affected. A prize of five dollars each was offered for the best dish of the varieties marked with a star, and another prize for the best dish of any other kind, which was awarded to a dish of Andrews.

Boston is not so much of a grape as a pear country ; yet we think a similar

record of the exhibition in this uncommonly favorable grape season will be of interest. 264 dishes were exhibited by 50 contributors, as follows: * Delaware, 26; * Diana, 22; * Concord, 21; * Allen's Hybrid, 15; * Wilder (Rogers's No. 4), 14; * Agawam (No. 15), 12; * Iona, 11; * Isabella, 10; * Creveling, 9; * Israella, 8; * Rebecca, 8; * Adirondac, 7; Merrimac (No. 19), 7; Massasoit (No. 3), 7; Salem, 6; * Hartford, 5; Lindley (No. 9), 5; Union Village, 4; Clinton, 3; Catawba, 3; Essex (No. 41), 3; Barry (No. 43), 3; Northern Muscadine, 2; Perkins, 2; Rogers's No. 1, 2; Rogers's No. 44, 2; * Martha, 2; Diana Hamburg, Cornucopia, Eumelan, Conqueror, Ives, Cottage, Telegraph, Rogers's No. 21, Rogers's No. 33, Blood's Black, Maxatawney, Merrill's Amber, Winchester, Framingham, Alvey, Lewis, Fedora, Post, Fancher, Nashua, Sage, and Una, one each, and 23 seedlings. As with the pears, this list must not be taken as an exact, but only an approximate index of the value of the different kinds. Eumelan and Martha, and other new kinds, will doubtless be more freely shown in future years, while Hartford would have figured more largely earlier in the season. A prize of $4 each was offered for the best dish of the kinds starred, and also three prizes of $4 each for the best dish of any other kind, which were adjudged to Salem, Barry, and Catawba. Many of the specimens were very handsome; and we particularly noticed Ionas, Rebeccas, and Barry as extra fine.

Native Grapes. — What is a native grape? The term is commonly used to signify grapes belonging to our indigenous species; and the great majority of those so designated belong to these species, having been either found wild, or else raised from seeds of the indigenous grape. There are, however, a few seedlings, raised from the European species, which have been designated native grapes; and while it is true that, in one sense, they are native, the term, as applied to them, is calculated to mislead, for it conveys the impression that they possess the same hardiness and adaptation to our climate as those of indigenous species. A variety of the *Vitis vinifera* is by no means necessarily hardy, because originated in America; indeed, no one yet originated on either side of the Atlantic, of purely *vinifera* blood, has proved worthy of general cultivation in this country (always excepting the Pacific slope).

What Fruits shall we plant? — This old question is not yet settled, and bids fair to furnish a subject for discussion a good while yet. We are not about to inflict on the reader a long list of "select fruits," but to make a suggestion to the owners of small gardens, especially to those who have room for only one or two fruit trees — not enough to supply the wants of a family. It is this: Do not plant the most popular pears. We advise this, for the reason that, being planted by everybody, they may always be bought in the market at a low price. Plant the kinds which you cannot buy in the market, or which, if you do buy, you must pay a high price for. In pears, for instance, pass by the Bartlett, and set out a Doyenné d'été, a Beurré Giffard, a Belle Lucrative, a Seckel, a Lawrence, or a Beurré d'Anjou. These are all of the highest character; and the single tree which you will tend carefully will afford far more satisfaction than a variety that can be bought at every street corner.

THE AUSTRALIAN GLORY PEA (*Clianthus Dampieri*), says the Rural Carolinian, has been found to succeed finely in the south, and is a great acquisition as an out-door bloomer. The readers of the Journal will recollect an article (vol. vii., p. 78) by Mr. George Such, giving an account of his success in growing it out doors at South Amboy, N. J. It is a very showy plant; and we would be glad to hear from any one who has tried Mr. Such's experiment still farther north.

LARGE FRUITS AND VEGETABLES are not always the best. A potato or beet, of moderate size, is not only more convenient, and easily cooked, but, especially the beet, is likely to be of better quality. The overgrown squashes and beets which attract so much attention at horticultural exhibitions, are, in reality, not horticultural, but agricultural productions, whose place is in the field and barn, rather than in the garden or on the table. Don't understand us, however, as wishing to exclude them altogether from horticultural exhibitions; for we like to see them as well as anybody. As to fruits, it is every day getting to be better understood that apples and pears of mammoth size are fitter for a race of giants than for men and women as at present constituted. A fruit committee, who understand their duty, will award a premium on apples or pears to a dish of perfect specimens of uniform size, in preference to one which may contain a few overgrown specimens, though the aggregate weight of the latter might be more than that of the former; and they should even be preferred to a dish of all large ones, if the latter were abnormal and misshapen, as is frequently the case with unusually large specimens.

STONE FRUITS FROM SEED. — It has commonly been taught by pomologists that peach, plum, or cherry, and other stone fruit trees raised from seed produced by trees in their own roots, that is, not grafted, would, as to variety, be identical with their parents. This cannot hold good in every instance; for a friend has informed us that in about twenty seedling peach trees, all raised from fruit grown on two natural trees, he found almost as many varieties as trees, and of course many differing from their parents. Still, there is no doubt that seedling stone fruits, whether raised from natural or grafted trees, are frequently so like their parents as to be practically identical, and generally bear a very strong resemblance to them, much more so than with the pomaceous fruits, like the apple and pear.

TROPICAL FRUITS IN FLORIDA. — J. N. Whitner, Melonville, Orange Co., Fla., writes to the Rural Carolinian that the banana is attracting especial attention at this time, chiefly because it becomes remunerative much earlier than most other tropical fruit crops. The growth is quite dense, allowing 3000 to 4000 plants to the acre. Even at 25 cents per bunch, $750 to $1000 per acre may be realized.

The lime is occasionally killed down to the ground, as was the case in the extraordinary cold snap of March, 1869. It puts up again rapidly from the root, and bears in one and a half to two years. These severe spells have so far oc-

curred only at intervals of about thirty years. Excepting such unusual visitations, the pineapple may be cultivated without cover. Even when deemed necessary, the amount of protection required is surprisingly slight. Within the present season, as fine specimens of this delicious fruit, grown in our midst, were exhibited at this place, as ever grew under the equator.

Pear Trees in Grass. — The advocates of planting pear trees in grass have quoted the case of the pear trees in the nurseries of Messrs. Hovey & Co., at Cambridge, Mass., in defence of their theory; and it is true that they have trees standing in grass which thrive and bear good crops, but, unfortunately for the grass theory, their trees, where the ground is carefully tilled, bear much better fruit. They have also trees remaining from blocks of nursery stock, some of which, though standing very close together, produce good crops; but it would be absurd to argue from this that pear trees should be planted only three or four feet apart, in irregular groups; yet the argument would be just as good as that drawn from the trees growing in grass. There are well-authenticated instances of trees doing better after grass had been allowed to grow around them than before, and ten, yes, a hundred times as many of trees which have been rendered worthless, or utterly destroyed, by permitting grass to grow around them. The conclusion which rational men would come to from these facts would be, not that trees should, in all cases, be planted in grass, but to inquire into the causes of the exceptional cases.

The Coliseum Ivy. — This very pretty plant (*Linaria Cymbalaria*) is a native of Italy, and is said to have been originally introduced into England by means of its seeds having been brought in some marble sculptures from that country to Oxford, where it has long established itself on the walls of colleges, gardens, etc., in such abundance as to have obtained the name of Oxford weed. In this country, it is generally cultivated on the walls of green-houses, or in hanging baskets, in which it presents a very graceful appearance; but we have known it to survive several winters out doors near Boston. It is a plant of a delicate, trailing character, well adapted for rockwork. A somewhat shaded locality will enable it to endure the winters best.

Soap Suds for Grape Vines. — Soap suds are frequently recommended for grape vines, and they are a most excellent fertilizer; but in applying them, it should be remembered that it is possible to have too much of a good thing. Mr. Fuller speaks of the too frequent application of washing suds as a prolific source of disease in the vines of cities and villages.

The Winterberry, or Black Alder (*Ilex verticillata*). — We know of no more beautiful shrub than this, which is indigenous to New England. In autumn and winter the red berries with which the stems are covered render it the best substitute for the holly where that will not thrive. It is worthy of a place in every collection of shrubs. It will succeed best in a moist, peaty soil.

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

ANTHURIUMS. — Under the impression that the culture of this beautiful class of plants is not so well understood as it should be, I venture to comply with the

ANTHURIUM LEUCONEURUM.

wishes of my friends, and state as briefly as possible the system pursued here in their management.

All the Anthuriums worth growing require a stove temperature at all seasons

of the year, and an atmosphere highly charged with humidity during the summer months, when they are growing freely. To grow them well, the temperature should range from 65° to 75°, with a rise of ten degrees by sun-heat, and a fall of five degrees at night. During the winter months, from 50° to 60° will be quite warm enough, as the stock will be at rest, and as a matter of course the atmospheric moisture must be withheld, for much moisture at that season will soon rot the roots, and produce the most disastrous results. When growing freely, they must receive copious supplies of water at the roots; and to prevent any injury arising therefrom, the drainage must be perfect in every respect. Clear soft water should be used both for syringing and watering, but for the former purpose it must be perfectly clean, or the sediment will settle on the beautiful velvety foliage, and materially dim its lustre. It is also important to use tepid water at all times; and for all purposes, the water should, as nearly as possible, be of the same temperature as that in which the plants are grown; but this can be managed very easily by placing it in the house twelve hours previously, if there is no tank to receive the rain-water from the roof. When at rest, maintain the soil in a moderately moist condition, and no more; but at all other times water copiously, and do not, under any consideration, allow the soil to become dry. On the other hand, guard against keeping it in a constant state of saturation. Syringe the foliage twice a day, — morning and afternoon, — and maintain the proper degree of humidity in the atmosphere by throwing water on the paths as often as may be necessary. This, however, as well as the syringing, must be discontinued from September until March.

The beginning of March is the best season of the whole year for repotting and top-dressing, according as each individual may require, as they commence making their new growth about that time. As the roots of all the species run along either on or just below the surface, deep pots are not required; and if they are used, fill them to within two or three inches of the rim with rather large pot-sherds. Deep pans are used here, and are found preferable in every way to pots, as a pan, which can be easily moved from place to place by one man, affords a surface over which the roots can extend equal to that of a pot requiring two men to lift it. Fibrous loam and peat in equal parts, with a portion of the fine stuff removed, and a liberal proportion of silver-sand added, will grow them to perfection. Place on the top of the crocks a layer of the roughest portion of the compost sufficiently thick to bring it to a level with the rim of the pot, then take the old ball of soil, separate and remove as much of the old exhausted stuff as can be conveniently done without breaking the roots about. Separate and spread out the latter carefully in the new soil, and then pack the remaining compost about them. The soil should be built up in a convex form, so that the base of the stem is about three inches above the level of the rim. As the soil is being filled in, it is desirable to add a sprinkling of small crocks to assist in keeping the compost open, and promoting the free extension of the roots. Those not requiring a fresh shift should be top-dressed with fresh soil after the exhausted stuff on the surface has been carefully removed. The stock can be increased either by the offsets which are produced round the old stool, or by seed. Separate the offsets, and after putting them in small pots, place in a close corner of

the stove. Sow the seed in pans filled with peat and silver-sand as soon as gathered, and place a sheet of glass over the soil. When the seedlings make their appearance above the surface, remove the glass, and pot off immediately they are strong enough to undergo the shift. Afterwards manage them as advised for the specimens.

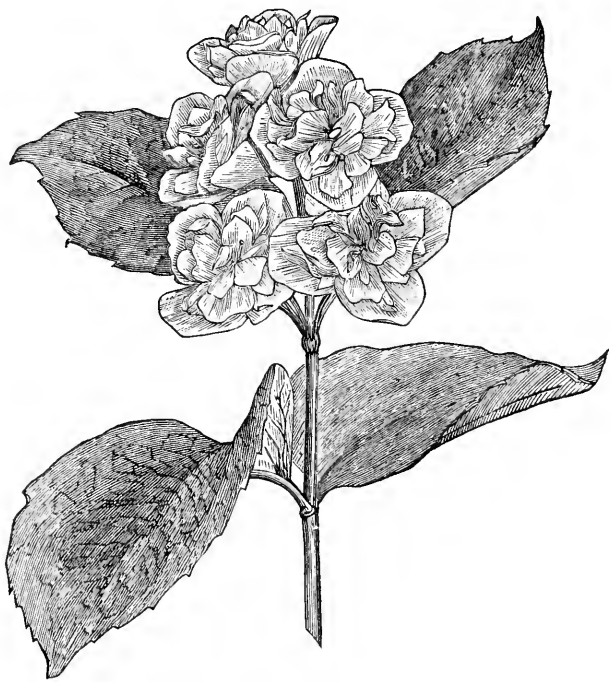
The most distinct and beautiful species are *A. acaule*, *A. magnificum*, *A. regale*, *A. leuconeurum*, *and A. Scherzerianum*. The first named has huge upright green leaves, and in general appearance is not unlike the Birds'-nest fern. When grown well it is really magnificent, but badly grown it is veritable rubbish. The best specimen of this magnificent species ever exhibited in this country was that contributed to the London exhibitions last season by Mr. Fairbairn, the able gardener at Sion House. The second and third named species have cordate or heart-shaped leaves of an immense size and great beauty, the surface resembling rich velvet overlaid with lines of silver ; and the last named has small green strap-shaped leaves ; but the vermilion red spathes, which are of the most dazzling brilliancy, and produced in the greatest abundance, render it one of the greatest ornaments to the stove yet in existence. Although it may be had in flower throughout the year, its proper season for flowering is during the winter, and as the spathes retain their freshness for two or three months, it has no equal among flowering plants. When in flower it is a first-rate subject for table decoration, and when it is more plentiful will undoubtedly be much used for that purpose, as good specimens can be grown in five or six inch pots. *J. W. Silver, in Floral World.*

Clematis Princess Mary. — This charming new *Clematis*, of the florida race, descended from *Clematis Standishii*, is one of a fine batch recently obtained by Mr. C. Noble, of Sunningdale. It is the most distinct break we have yet seen from the violets, grays, and whites, which are the ordinary colors of the large-flowered forms of *Clematis ;* and its very pleasing shade of rosy-pink will render it a most welcome acquisition.

The niche which this novelty is adapted to fill is that of an early-blooming hardy or conservatory climber. It is of free but slender growth, with quite the habit of *C. Standishii*, and, like that plant, is adapted either for pot-culture or for planting out in the conservatory, or against a conservative wall. As a spring exhibition plant, blooming freely about the month of May, this, with others of its race, is to be highly recommended. With the double white *C. Fortunei*, the double blue *C. John G. Veitch*, and the hybrids Mr. Noble has introduced to public notice, *e. g.*, *Miss Bateman*, *Albert Victor*, *Lady Londesborough*, etc., a very charming group might be made up. Though the exact parentage of the individual seedlings has not been preserved, we learn from Mr. Noble that *C. Standishii*, *Fortunei*, and *Sophia flore-pleno*, with *C. lanuginosa* (the two former principally the seed-bearers), were the parents of his hybrids — a race of free-blooming, early-flowering varieties, which, possessing vigor of growth, combine also fine form and unwonted substance of petal, with some exquisite tints of color. We learn, moreover, that the plants are perfectly hardy.

T. M., in Florist and Pomologist.

PHILADELPHUS PRIMULÆFLORUS. — This plant, represented in our engraving, springs from the common *Philadelphus coronarius*. The name that we have given it describes quite exactly the form of the flowers, which, by their aspect only, have some analogy with those of the double-flowered varieties of *Primula grandiflora*, with which, in the spring time, such pretty borders are made.



PHILADELPHUS PRIMULÆFLORUS.

The characters of the *Philadelphus primulæflorus* may be described as follows: Shrub bushy, branched, with short divisions; leaves glabrous, regular oval cordiform, deep green, crumpled, toothed on the edges, the teethed curved, acute, spinescent; the nerves reticulated, projecting; flowers fragrant, semi-double, of a beautiful white; the petals regularly rounded.

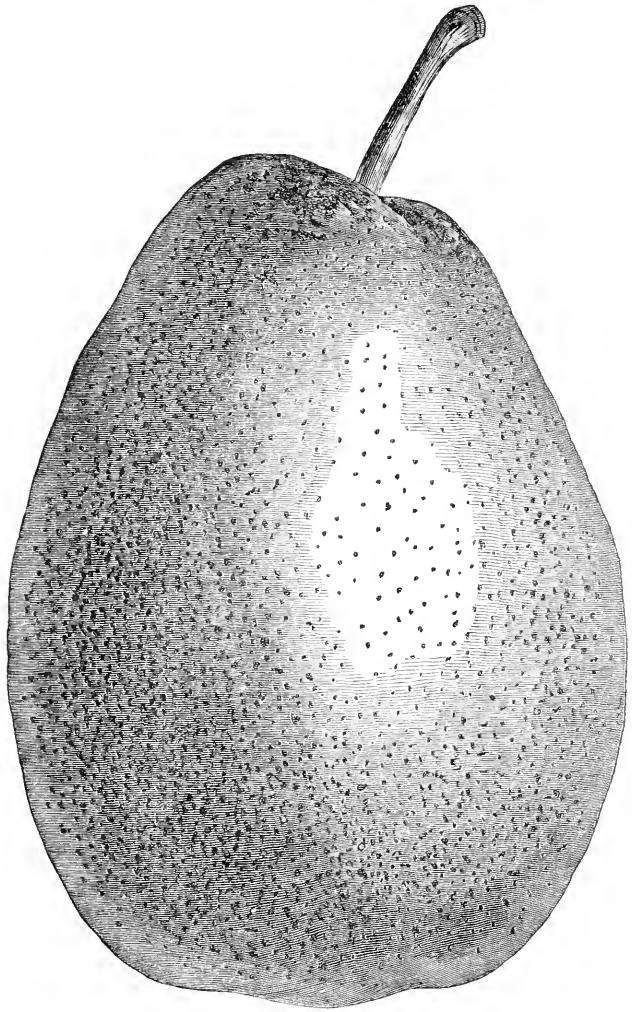
This plant is very beautiful, and is especially remarkable for the regularity of its flowers, which, never opening completely, remind us somewhat of those of certain species of ranunculus when they begin to expand. It seems hardly necessary to say that it is hardy, and that its culture and multiplication are identical with those of the common syringa (*Philadelphus coronarius*).

E. A. Carrière, in Revue Horticole.

LAPAGERIAS. — Give the Lapageria abundance of water when growing; *that* is the way to make sure of fine plants and abundance of bloom.

Floral World.

PRESIDENT MAS PEAR. — This new variety was raised by M. Boisbunel from seed of the Glout Morceau sown in 1852. It first produced fruit in 1867, and in



PRESIDENT MAS PEAR.

1869 was dedicated to M. A. Mas, editor of *Le Verger*. The original tree forms a pyramid of the greatest beauty, about twenty-six feet in height. The fruit is large or very large, swollen in the middle, coming to an obtuse point at the stem, and tapering still less towards the eye. Its height is always greater than its thickness. Sometimes it becomes quite slender at the stem, which then appears

to be a prolongation of the fruit. The skin is smooth and even, of a clear green, passing to clear yellow at maturity, and pretty regularly covered with points and fine marblings of brown, which are very numerous around the eye and the base of the fruit. The flesh is white, fine grained, melting, and fragrant. The juice is very abundant, very sugary, and well perfumed. It ordinarily ripens about the end of November, but may be kept until January, as it ripens very slowly in the fruit room. It succeeds on both free and quince stocks, on either of which it soon forms fine pyramids, or easily takes any other form, and comes early into fruit. *Revue Horticole.*

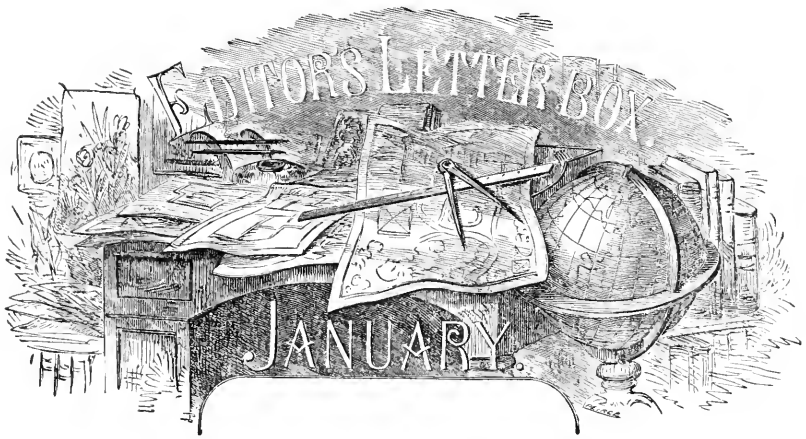
Tobacco for Insects. — The use of tobacco-water to clear trees of insects is common in France, the Government selling a concentrated liquid for the purpose; but the following mixture is now recommended for peach and other trees: Four parts of road dust, two parts of pulverized tobacco of any kind, and one part of sulphur; the mixture to be distributed by hand on the branches infested by insects, after sprinkling with water, if the weather be dry.
Gardener's Chronicle.

Glass Walls, for training fruit trees, and also walls made of thin slabs of slate, are being introduced in England in place of the brick walls formerly used.

Avocat Allard Pear. — This is one of M. Grégoire's very numerous seedlings, and promises well. In quality it is quite first-rate. The fruit with us this season is rather small; but it looks as if it would grow to a goodly size. The flesh is pretty solid, a little soft; flavor very rich, with a strong muscat aroma. Season, October. We mark this as a promising variety.
English Journal of Horticulture.

Asparagus Bed. — A well-made asparagus bed will last a lifetime if taken proper care of. It is a good plan to remove the seed while green, as it prevents the growth of seedling plants between the rows, and which only makes work to weed them out. *Floral World.*

Effect of Coal Gas on Trees. — Dr. Poselger has, it is said, shown by repeated experiments, that the growth of trees and shrubs is not interfered with by any quantity of coal gas that may escape in the soil, and find its way to their roots, and, consequently, that the illuminating gas escaping from mains does not injure the trees growing along the streets and promenades of cities, as many persons have supposed. *Gardener's Chronicle.*



THE Editors of Tilton's Journal of Horticulture cordially invite all interested in the various branches of horticulture, to send questions upon any subject on which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to inquiries in regard to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to horticulturists.

We would especially invite our friends to communicate any little items of experience for our "Notes and Gleanings," and also the results of experiments. Such items are always readable, and of general interest.

We must, however, request that no one will write to the contributors to our columns upon subjects communicated to the Magazine.

Anonymous communications cannot be noticed; we require the name and address of our correspondents as pledges of good faith.

Rejected communications will be returned when accompanied by the requisite number of stamps.

A. A. G. — The dog-tooth violet, as it is called (*Erythronium americanum*), is a very proper plant for your fern case. The best time to secure the roots is when the leaves are turning yellow in the spring, but if not done then, it may be at any time before the ground freezes. The leaves, as well as the flowers, are very beautiful, though it is not a violet at all, but a little lily with a bulbous root.

MR. EDITOR: Can you tell me the best way to keep the winter covering of my strawberries from blowing off? After using some tons of litter to protect my beds, I had the mortification and annoyance to see the first high wind scatter it "over the hills and far away." *H. D. M.*

We have thrown a little earth on to the litter used for such purposes, which has proved quite effectual. When a heavy rain comes soon after covering, so as to beat down the litter on the earth, even this will be superfluous. But it is often most convenient to protect after the ground is frozen hard enough to bear up a cart; and in this case we do not see just how to secure the covering, and would be glad to hear from some of our large strawberry growers as to how they do it.

N. S. L. — The best treatise on evergreens for your wants is Mr. Hoopes's Book of Evergreens. It gives full directions for their propagation and cultivation, with accurate descriptions of all, including the newer species. It does not comprise the broad-leaved evergreens, such as rhododendrons and kalmias, but only the coniferæ.

G. B., Baltimore. — The subject of Wardian cases has been very fully treated in the Journal; and though we would like to tell you again, to give full directions would require more space than we can spare at present. You will find excellent articles in our vols. ii., pp. 199, 283, and 326; vi., p. 16; vii., p. 341; and viii., p. 14.

CAN any of the readers of the Journal of Horticulture inform me what trees are most eligible for planting in exposed places on the sea-coast? I see the Austrian pine recommended; and if any one has any information as to its value for this purpose, I should be glad to know it. *L. L.*

G. H. — The flower you saw at the horticultural exhibition was no doubt the *Tritoma uvaria*, which, from its unique form, always attracts attention. Its glowing orange-red color has gained for it the more apt than beautiful name of "Red-hot Poker." Though long since introduced, it is only lately that it has become popular. It does best in a deep, rich soil; and if the soil be dry, will need only the protection of some litter, which should be covered with boards, in an inclined position, to shed the rain. If the soil is at all wet, they must be protected in a cold frame in autumn, and replanted in May. They are most effective in beds, on the lawn, about eight feet in diameter, and containing about a dozen plants.

N. B., Boston. — Your fruit is the *Cydonia japonica*, or Japan quince. The fruit is of no value, being entirely uneatable; but the flowers, which are of a bright scarlet, and appear early in spring, are well known as among the most beautiful ornaments of the garden at that season.

HAS any one ever succeeded in cultivating that most lovely of autumn flowers, the Fringed Gentian? I once sowed some seed, but it never vegetated; and if any one has succeeded better, I should be glad to know how it was done. *T. G.*

CULTURE OF THE PERSIMMON.

By Arthur Bryant, President Illinois Horticultural Society.

Within the past two or three years paragraphs have appeared in different publications inviting the attention of horticulturists to the persimmon. Believing that this fruit may be greatly improved by cultivation, I will relate my own experience in regard to it.

In the autumn of 1833 I gathered some persimmons near Meredosia, on the Illinois River, which is as far north as I have found the tree growing wild in the west. The seeds were sown the next spring, and I raised some fifty or sixty plants. The tops were mostly killed the following winter, which was a severe one; the only instance in which they have ever been injured by extreme cold. After remaining four or five years in the seed-bed, they were transplanted — a not very successful operation, most of them having only a tap-root, larger than the stem, and penetrating the soil to an unknown depth. About twenty survived; one half of which bore fruit in ten or twelve years from the seed, the rest being barren. No two trees produce fruit exactly alike; it varies in size, shape, flavor, and time of ripening. One tree produces the largest fruit I ever saw; it has fewer seeds than usual, and is one of the earliest to ripen.

In this latitude (41° 30′) the persimmon does not uniformly ripen its fruit. It rarely blooms till June, and the fruit is best when frosts do not occur till late in autumn. It ripens in succession, and all that has not reached a certain stage of maturity is spoiled by freezing. In 1869 the trees did not flower till the end of June; the summer was

cool and backward, and the unusually severe frosts in October destroyed the fruit; not a single specimen was eatable. It is a mistaken idea that frost is necessary to perfect the persimmon. The richest, highest flavored samples I ever tasted, were ripened before the occurrence of frost. Freezing removes their astringency, but they are better if the season is long enough to ripen them without it. Probably the fruit would mature earlier in sandy or gravelly soils than in the rich loam of the Illinois prairies.

The barren and fertile flowers of the persimmon occur on different trees, and are readily distinguished; the former being smaller and much more numerous than the latter. It is usually considered strictly diœcious, but I have two or three trees producing staminate flowers which occasionally bear a little fruit. This is uniformly quite small, of peculiar form, — conical, tapering regularly from the base to a point, — ripens early, and is of fine flavor. An old Kentuckian once told me that the barren trees could be forced into bearing by thrashing the branches with a pole. I have never tried this sort of castigation, but it is possible there may be something in it. I have known the native mulberry, a tree of similar sexual characteristics, after bearing abundantly for some years, produce only staminate blossoms for three or four seasons, and afterwards revert to its former productiveness.

The persimmon is commonly a small tree, although in favorable situations it sometimes attains a considerable size. Forty years since there were persimmon trees, near the mouth of the Illinois River, fifty or sixty feet high, and two feet in diameter. It is a fine ornamental tree, with rich, glossy foliage. It prunes itself, some of the small branches dying every year, and breaking off easily at the point of junction with the main limbs. The fertile trees bear abundantly, and, with few exceptions, annually. Ripe persimmons laid down in sugar make a sweetmeat which is highly esteemed. Any attempt at cooking them without removing the seeds seems to revive their astringency.

From my experience in the culture of the persimmon may be derived the following conclusions: That it is worthy of cultivation as an ornamental tree wherever it will thrive. That cultivation of any but the earliest varieties for fruit in northern latitudes will result in disappointment. That its strong tendency to produce varieties renders it extremely probable that earlier, larger, and better sorts than any now known, may be obtained by judicious propagation. For this purpose it would seem that seed of the earliest ripening fruit should be selected from trees grown farthest north. The young trees should be transplanted when one year old.

IMPLEMENTS FOR PUTTING UP TRELLIS WIRES.

By Fred E. Underhill, Brocton, N. Y.

For the purpose of facilitating the labor of putting up wire trellis, I last winter made two simple devices, which have proved to be so useful, that I have concluded to publish descriptions and drawings of them, that others may avail themselves of the improvements.

The first is a wire coupler, something similar to which I have seen used in making connections in telegraph wire.

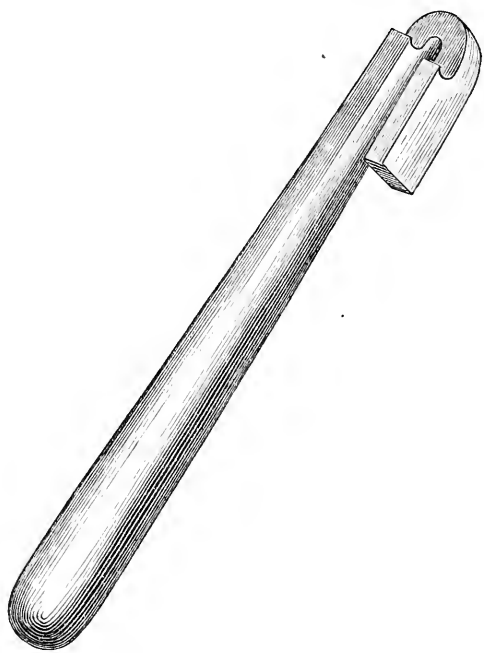


Fig. 1.

The engraving (Fig. 1) represents the implement about half the size of the one I use. Any expert blacksmith can make one in twenty minutes. It is made of half inch round iron, with one end flattened and stretched out to about five eighths of an inch in breadth and a quarter of an inch in thickness. This is then bent over so as to leave an open slot, large enough for the wire used to slip in and out with ease. Then

a bevelled shoulder is made with a file across one side, care being taken to have the face of the shoulder concave.

In using the coupler, place the two wires which are to be joined across each other at nearly right angles, leaving the two ends to project about three inches from the point of junction, and hold the wires in that position with a strong pair of pincers. Then with the hand bend the upper wire over in the manner indicated in the following engraving.

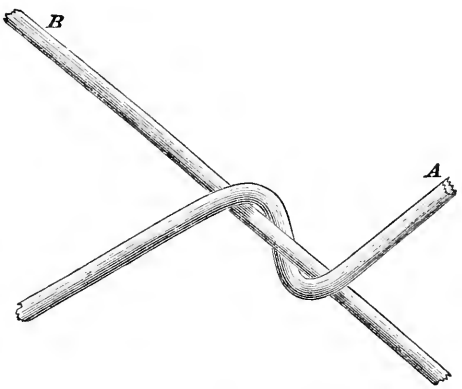


Fig. 2.

Next place the slot of the coupler across the straight wire with the hook up, in such a position as to have the shoulder against the protruding end of the bent wire A, and then by turning the coupler around like a crank, wind the wire to its end around the straight wire. Then reverse the position of the coupler so as to wind the end of the wire B in the opposite direction. When completed the wire will present the appearance indicated in the following engraving.

Fig. 3.

By use of this contrivance a neat and strong joint can be made in the trellis wire in a few seconds.

The next implement which I have found very serviceable is one I contrived for stretching wire on the trellis. It is made of wood, the frame being about twenty inches long and ten inches wide, and is in form like the engraving on the next page.

In securing the trellis wires I begin by boring holes through the end posts. Then, having run one extremity of the wire through the hole designed for it, I drive a pin into the hole, and around the pin I wind the end of the wire; I next lift up the wire and secure it on the intermediate posts by the staples ordinarily used in vineyards. Then, having put the other end of the wire through the hole in the end post at the opposite side of the vineyard, I place the stretcher against the post,

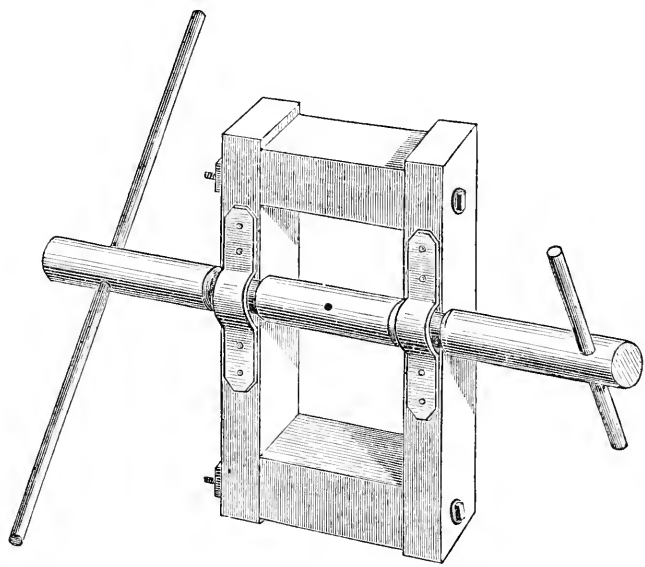


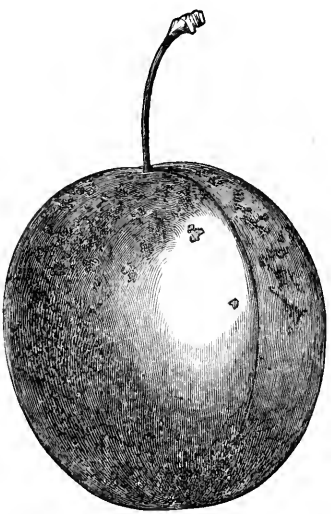
Fig. 4.

draw the wire through by hand, and insert the end in the little hole in the middle of the windlass. A few turns of the windlass will bring the wire to a proper tension, and this being attained, I drive a pin tightly into the hole, and then, removing the stretcher, I wind the end of the wire around the pin.

Two men with the appliances I have described can put up from two to three times as much wire in a day as they can by any of the ordinary methods pursued.

THE IVES PLUM.

This variety was originated some years since at Salem, Massachusetts, by Mr. J. M. Ives — who thought it, probably, a seedling from the Washington. Here, where only a few kinds of plums are cultivated, it is one of the most valued, and it is believed that it may safely be recommended for general cultivation throughout the country.



The Ives Plum.

The tree is productive and vigorous, making an open, spreading top, with strong, straight shoots. Young wood brownish, becoming purplish-red at the ends, covered with a hardly perceptible down.

Fruit large, oval; suture sometimes distinct, but generally obscure. Skin yellow, clouded with whitish streaks like Washington, but less distinct. Where most exposed to the sun it is tinged with red, and spotted and clouded with deeper red and a few patches of thin russet. Bloom rather thin. Flesh yellow, transparent, juicy, and rich. It can hardly be said to part from the stone, as the latter is contained in a cavity larger than itself, and seems to be joined to the flesh only at one edge.

WHITE *vs.* RED WINE.

By Samuel Miller, Bluffton, Mo.

The rage for white wines being now so much greater than for red, it may be interesting, in more ways than one, to know how to make white wine out of dark-colored grapes.

We were placed upon a committee — as chairman — where twenty-seven samples of Concord wine were tried, among which were five bottles of white, from different persons. The first premium was awarded to one of the white; and it was hard for us to decide about the second — between a red and white one. Some of the committee were disposed to rule out the white ones, as they thought no white wine could be made of Concord grapes. I told them to wait until we had tasted them, when my mind was made up as to its being genuine Concord; and I also told them how it was made. On inquiry, we heard from the lips of the manufacturer that my surmises were correct. Here is the process: —

Gather the grapes carefully when fully ripe; crush and press quickly, and put into clean vessels, filling to within a few inches of the bung-hole. Take a bung that is considerably less than the hole, and wrap cotton around it, so as to make it tolerably tight. This will allow the gas to escape, and yet not allow the external air to affect the must. When fermentation has ceased, and the wine is clear, it should be drawn off as long as it runs limpid, the vessel rinsed out carefully, and the wine returned. By February following, it might be again drawn off, and treated as before, always keeping the vessel quite full, and the bung tight.

It is always well to have a smaller vessel at hand than the original, as the waste in dross, etc., lessens the bulk, so that it will not fill the original vessel.

When this wine is a year old, it will be a wine that the ladies will fancy, I am sure, and one that the opposers of Gallizing can find no fault with. This is then a wine that is purely the juice of the grape, and particularly adapted to sacramental purposes.

Some may ask, How much can you get out of the grapes in this way? I would answer, about two thirds of the juice. After this white wine is taken out, the husks should be thrown into a vat, and about one gallon of sugar water to every two gallons of must that was pressed

out thrown over them. Two pounds of pure white sugar to the gallon will bring it up to eighty degrees, which is heavy enough for ordinary use. Let this lie for thirty-six or forty-eight hours, stirring up the mass well occasionally, so as to expose the husks to the atmosphere. Keep a lid on the vat or tub all the time. Press it, and put it into clean casks, treating same as the other, and, when ripe, it will be a fine red wine — just the thing that will be drank all over the length and breadth of the land as soon as red wines happen to become fashionable. But at this time we must regulate things according to public taste, and therefore make white wine out of all the grapes that will do it.

A good guide in this matter is, that any grape that will leave the stem clear when a berry is pulled off will make white wine, if properly managed. But if the stem has color when exposed, — as Creveling, Clinton, Norton, Marion, etc., have, — there is no use attempting it.

The white Concord, first alluded to, was again brought out a year and a half after its first appearance, and again proved a victorious competitor in quite a crowd of Concord samples, showing that it would keep — a fact doubted by some, at first.

STUARTIA PENTAGYNIA.

By Francis Parkman, Jamaica Plain, Mass.

Stuartia pentagynia, called also *Malachodendron ovatum*, is a native of Virginia and other southern states. Nevertheless, it is perfectly hardy in the neighborhood of Boston, provided the soil is not too wet, and the situation not too exposed. It is a very beautiful shrub, or small tree, growing to the height of twenty feet in its native place, though rarely so large here. It loves a peaty soil; but will grow tolerably well in garden loam, if light and moderately moist. It blooms in August and September. The flowers are white, and about four inches in diameter, with a dense cluster of anthers in the middle, sometimes yellow, and sometimes of a purplish color. A large plant covered with these creamy blossoms forms one of the finest garden ornaments imaginable.

It grows at first rather slowly, but, when well established, makes long and vigorous shoots. We hear it complained of, in some quarters, as a shy bloomer; but, in our own experience, it has never failed to give a

plentiful supply of flowers, which have but one fault — that of dropping too soon. It may be propagated by layers of the young wood.

It takes its name from John Stewart, Marquis of Bute, a distin-

STUARTIA PENTAGYNIA.

guished patron of botanical science; and the name was formerly written *Stewartia*.

There is an allied species. *Stuartia virginica*, equally beautiful, but less vigorous in growth, and therefore less desirable for general culture.

A PLEA FOR THE FLOWERS.

By Alexander Hyde, Lee, Mass.

There is a class of persons in every community which may be called utilitarian. With them everything must be shown to be useful before it can be considered valuable. Cabbages make milk and muscle; therefore cabbages must be cultivated. Apples are good for dumplings and cider; hence apples receive a share of attention. Grapes are a luxury, and it is a matter of indifference whether they are cultivated or not. Fuchsias cannot be eaten or sold; therefore to the mere utilitarian they are valueless.

There is another class, which may be called æsthetic. With this class beauty is the standard of value. They have a natural love of the beautiful, and, by education, their taste has become so refined and delicate, that they despise common and useful men, and common and useful things. With such the cultivation of flowers is the noblest of employments. The artist is held in high esteem by them, while the artisan is neglected. Both these classes have some truth for the basis of their characteristics; but they do not see the whole truth. The utilitarian looks only at the useful, and the æsthetic only at the beautiful; and each undervalues what he has not particularly studied, and consequently loses much of the enjoyment which life is capable of furnishing.

We desire, in this short article, to call the attention of the utilitarian to the value of the beautiful, and especially of flowers, as the highest types of physical beauty. In the first place, to despise or undervalue flowers is to reflect on the wisdom of the Creator who made them. It is obvious to the most stupid observer, that the Omniscient regards the beautiful as worthy of his attention; for the earth is most profusely adorned. He might have made the fruits and vegetables to grow without the flowers; but the infinite wisdom and benevolence that made the fruit made also the blossoms which herald it, and it is simply arrogance in puny man to question the value of those blossoms. We are glad the Creator took no counsel with the utilitarians when he planned the universe; for they would have advised that everything should have been as straight and plain as a pikestaff, whereas now "there is beauty all around our paths," if we only have eyes to see it. Not only the flowers, with their exquisite coloring, graceful form, delightful fragrance, and perfect symmetry, but all things, animate or inanimate, were created with an eye to beauty as well as utility — were designed to give pleasure to all created intelligences, and first to the Creator

himself; for we are expressly told that he looked upon his works, and pronounced them good. That the great First Cause made the flowers, and takes delight in them, has always seemed to us a sufficient reason for their cultivation by men.

The Creator has not only made the flowers, but he has endowed man with faculties for enjoying them; and he who does not cultivate his taste for flowers does not properly develop himself, and loses some of the highest and purest enjoyments of life. We once called upon an eminent lawyer, — one of the most perfectly developed men we ever knew, — and found him at work in his flower garden. He remarked, that flowers furnished delight to his sight — a higher sense than taste. Those who labored merely to eat and drink enjoyed a pleasure in common with the brutes. The inferior animals never rose to the enjoyment of a landscape. The horse, the noblest of the domestic animals, and most associated with man, could graze all day with beautiful views constantly in sight, and never appreciate them — could tread on lilies of the valley, and press out their delightful fragrance, without heeding the beauty of the flower, or enjoying its exquisite odor. Man was made capable of pure enjoyment from beautiful sights, harmonious sounds, and sweet perfumes; and our friend concluded, from the endowment of man with these higher faculties, that they should be cultivated. A wise conclusion of the learned jurist, which we commend to those who think all the time spent in the flower garden wasted. Those who give all their mind to "what they shall eat, and what they shall drink, and wherewithal they shall be clothed," neglect the higher faculties of their nature. Food and raiment are necessary, but the provision of these necessaries is not the whole duty of man.

But supposing that we have naturally little taste for the beautiful, and have neglected the cultivation of the little we are endowed with, so that we derive scarcely any pleasure from flowers, and pass them by almost as unheeded as the ox does, that sees them without enjoyment, and treads upon them without compunction, still there are others whose senses are more acute, and benevolence should prompt us to cultivate the flowers for the delight of those who do enjoy them. It should be the ambition of every man to make a pleasant home for his family and friends, and flowers are essential to a pleasant home; at least they will be found to add greatly to the pleasure of the family. To make home pleasant, it is not necessary that the house be large, or the grounds expensive. Some of the pleasantest homes we have ever seen have been mere cottages; but there was around them that air of taste and comfort which led us at once to conclude, these are genuine homes. Peace and purity abide here.

It is a mistake to suppose that flowers are the peculiar property of the affluent. God has made them as common as air or water, and the poor can, and do, enjoy them equally with the rich. We have known a rich lady discard all flowers, and would have none of them on her premises, because they required too much care, and she did not see much beauty in them; and we have seen a shanty with morning glories creeping over the door and windows, with here a patch of verbenas, and there a bed of pansies; and we have no doubt the mistress of the shanty was more of a woman, and enjoyed life more, than the lady of the mansion.

God made the flowers; let us be co-workers with him, and cultivate them. God made us capable of enjoying the flowers; let us develop our nature to its highest capacity of enjoyment. God has given us families and friends; let us make a pleasant home for them, by surrounding it with flowers — the cheapest and most beautiful material adornment that home can have.

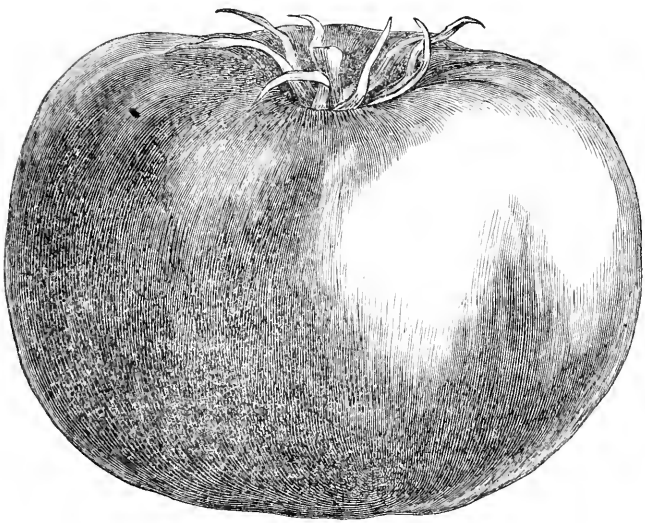
THE TROPHY TOMATO.

By J. J. H. Gregory, Marblehead, Mass.

When this new tomato was sent out last season at the moderate price of $5.00 for twenty seeds, I held to the belief that in the various shapes, sizes, degrees of solidity, earliness, and quality that were possible in the tomato family, to the nearly thirty varieties I had already under cultivation there could be but little added — certainly not enough to return five dollars' outlay on twenty seeds, all of which might be slipped under the finger-nails and hardly be noticed. About every one of the thirty varieties had been originally sent forth as a marked advance on all that preceded; and yet, from the earliest sent forth to the most recent, the distance in good qualities was somewhat easily bridged. It weighed considerably against the Trophy, in my mind, that it was not sent forth as a new variety, but simply as the result of years of careful selection of seed-stock.

I purchased my five-dollar package, and gave it a trial this last season. The result is, that I am satisfied that in some respects the Trophy is quite an acquisition. In shape it inclines to flat-round, — though some

specimens were irregular, — with a remarkable thickness from the stem through, excelling in this respect even the Tilden. In size it is of the very largest, being excelled but by one variety in my collection. In solidity of flesh it is not excelled by any tomato, and, when its great size is considered, it must be conceded to be unequalled. As to quality, my wife (to whom I always defer under this head) ranks it as equal to the best, some of the smallest sorts being possibly excepted. In color



The Trophy Tomato.

I do not think it quite equals in brilliancy the Tilden, General Grant, and one or two other varieties. Of its earliness I cannot speak from any comparative test, though I infer that it ranks well.

Could I have seen the tomato itself the season before it was sent out, as a seedsman I should have considered fifty or a hundred dollars well invested, even at Colonel Waring's unconscionable price of five dollars for twenty seeds.

CROSS-BRED SEEDLINGS OF THE EARLY ROSE POTATO.

By Cyrus G. Pringle, Charlotte, Vt.

The success which attended the experiments of Mr. Goodrich must have established the correctness of his theory, that in improving the potato we must go back to the place of beginning — to the natural species. He did not live to perfect his undertaking, but he left us a lot of seedlings possessing in the highest degree health and vigor — characteristics of chief importance. If they lacked in quality, that were not surprising, since the best of them were but two removes from the wild state. Mr. Bresee wisely builded upon the foundation which Mr. Goodrich had laid, and has given us a number of seedlings which constitute a long stride towards perfection.

The belief that some advantage might still follow from continuing this course of seeding, prompted me to raise a supply of seed from the Early Rose during the summer of 1869. Finding the pollen of this variety perfectly abortive (I gathered a considerable amount of it, and applied it with the greatest care to the pistils without any success), I fertilized a large number of flowers with pollen of other good sorts. The seed was sown in a hot-bed about the 20th of April last; and the plants, some eighty in number, were transplanted to the field the last of May, being placed in rows among other potatoes, and two feet apart in the row. No manure was used in preparing the soil, as it had been enriched the previous year; and the plants only received, in common with the rest of the field, a dressing of ashes and plaster. For a while the plants held a doubtful struggle with the drought; but eventually they reached full development, showing blossom-buds, though these were blasted by the heat. The vines presented every diversity of form, size, and color; some were dwarfish, and only attained the height of ten inches; others, branching freely, spread two or three feet in every direction. The entire habit of some was similar to that of the Early Rose; while others resembled their male parents. Every intermediate form was exhibited.

The dwarfs began to ripen their tops August 10, some time before those of the Early Rose turned yellow, and yielded from one to two pounds. These were mostly found among the crosses with early sorts, as the Sebec. Their yield was doubtless much lessened by the severe drought of the season, as the standard early sorts were but a light crop here. Those ripening throughout September averaged between two and three pounds. In the early part of October four pounds were some-

times attained; and by the 15th five were not uncommon. On the night of the 27th the vines of those that remained — mostly crosses with late kinds, as Excelsior and White Peach Blow — were cut down by frost. A few of these plants yielded six pounds and upward, and one reached seven pounds and seven ounces. The tubers were generally quite uniform, and of marketable size; several exceeded a pound each; two from one hill weighed respectively fifteen and sixteen ounces, and the largest one in the lot weighed twenty ounces. In adjoining rows the Early Rose averaged about two pounds five ounces. On the other side several hills of Sebec ranged from ten ounces to two pounds three ounces; of White Peach Blow, from two pounds fifteen ounces to five pounds fourteen ounces; of Peerless, from four pounds two ounces to five pounds four ounces.

The tubers are as various in every particular as were the vines. Some reproduce the form and color of the Early Rose, with earlier or later maturity; others are the exact counterparts of those kinds which furnished the pollen. Some seem to combine happily the good characters of both parents. Among them are some of as fine appearance and quality as any I ever saw. While many possess some fault which will cause their rejection, a few excel in every respect. Only a single instance of rot was found among them.

DOUBLE PURPLE WISTARIA.

By Francis Parkman, Jamaica Plain, Mass.

Several years ago we received from Japan a small plant, in a pot. It was without name, but was evidently some species of Wistaria. It grew with the greatest vigor till its longest shoots measured more than thirty feet from the ground. Last season it bloomed for the first time. From the character of its foliage we had supposed it to be the white variety of *W. sinensis*, and we were almost as much surprised as gratified when we saw it hung with long pendent clusters of perfectly double flowers, a shade deeper in color than the common single wistaria. In short, we found ourselves in possession of a novelty of the first order, which, so far as we know, has not yet appeared in the catalogues of any European nurseryman. The depth of color of the flowers, the compactness and length of the clusters, and the vigorous, hardy character of the plant, — which has stood three winters totally unprotected, and without the slightest injury, — make it an invaluable addition to the list of hardy climbers.

THE PAMPAS GRASS.

By Alexander Graham, Nuits, near Dobbs' Ferry, N. Y.

This grass (*Gynerium argenteum*) is, to my eye, the most magnificent of all plants for summer decoration, though it is very seldom you see its feathery tassels waving on the many fine lawns throughout our country. I have visited a great many country seats of the merchant princes along the noble Hudson, and in very few places have I seen this beautiful grass. When looking through some of those well-kept country seats my eye falls upon a miniature lake, I can imagine how clumps of pampas grass would look dotted here and there; but nature has not favored us with one of those ponds, so I plant them in front of some finely-shaped Norway or hemlock spruce, and it has the desired effect. When the wind is blowing, those light, graceful plumes waving, with the dark foliage of the Norway for a background, produce a most charming effect.

I have under my care some plants that bore this season from two to four tassels, and the stalks were from ten to twelve feet high. My treatment of them is this: I lift them about the middle of November, and put them in small tubs, and place them in a cold grapery. I never let them get too dry, nor yet too wet. On cold nights I lift them into the green-house. In the month of March I expose them fully to the sun, and give plenty of water. They then begin to grow freely, and by the time you plant them out they are in a good growing state. By so doing, you give them a long season to grow. Along in August you will see their beautiful tassels appear, which will last until frost; then you can cut them off, and decorate your parlors with them.

I use good sod and cow manure, and water freely at the roots in dry weather. I find a northern exposure is best adapted for the growth of this plant, as I think it does better a little shaded from the hot rays of the noonday sun. It can be preserved in the winter by tying up and covering with a barrel packed with leaves to prevent the roots from freezing, but not with such good results as by the other mode.

THE MOUNT VERNON PEAR. — Since writing the account of our visit to the original tree of this variety, the specimens which Mr. Walker then gave us have ripened, and proved of the finest quality. In this warm and dry season, when pears ripen earlier than usual, the last one kept to about the middle of December. As mentioned in the full description given in our vol. iii., p. 144, the flavor is quite novel in pears; to us it seemed to resemble cinnamon, but a friend who tasted it thought it recalled the odor of sandal-wood. The juice is sprightly and vinous.

Our good friends of the Rural New Yorker, who thought this variety identical with Beurré d'Albret, must provide their pomologist with a new pair of spectacles. Whatever general resemblance there may be between these two varieties they are yet quite distinct, the Mount Vernon being, as we remarked in our previous notice, probably a seedling from the Figue, while the affinities of Beurré d' Albret are with the Brown Beurré.

FRUIT IN SOUTHERN ILLINOIS. — The shipments of fruit from Centralia, the past season, were 6860 bushels strawberries, 2300 bushels raspberries, 4340 bushels blackberries, and 138,028 bushels peaches. The strawberry train on the Illinois Central Railroad commenced running on the 22d of May, and ended on the 9th of June. The peach train commenced on the 28th of July, and ended the 16th of September.

AN OLD APPLE TREE. — The first apple tree set out in Bennington, Vt., in June, 1761, by Peter Harwood, one of the first settlers, was recently prostrated by the wind.

THE VOLUSIA ORANGE. — *Mr. Editor:* It affords me much pleasure to send you, by mail, to-day, two specimens of the Volusia Orange. It was my intention to have mailed you a bunch containing four good-sized oranges; but when preparing them to send, I found that they weighed four pounds *without* the wrappings or packings. So I could not send by mail. I had serious thoughts of sending them by express; but I knew that to send them by that channel was a very uncertain thing, as it often happens that the packages from here to New York and Boston are not delivered until after several months. I hope these two specimens will reach you in good order, and that you may enjoy their fine flavor and excellence. These oranges are a second crop from the tree that produced the oranges I sent to you in the winter. The first crop set its fruit in March, 1869, and produced ripened fruit in October, 1869. In July, 1869, the tree commenced blossoming again, and produced a little over half a crop of new oranges. As will be seen by these specimens sent, the fruit is not fully ripe now, yet you will find these oranges to be exquisite in flavor. It is a very unusual thing for an orange tree to produce two crops of fruit in one year. In my experience of Florida life, which extends over eleven years, I never knew such a thing as two crops of oranges from one tree, in a year, before.

I send you these oranges, not as *picked specimens*, but as a curiosity. The bunch I was going to send had larger oranges on it than these two. Could I have picked single specimens, I could have sent you some fully half as large again. You will concede, however, that these I send are not *small* oranges. One of them is somewhat flattened: this came from a bunch, and is caused by the pressure of the contiguous orange.

Colonel D. Redmond, of the "South Land," — New Orleans, — agrees with me that this is a *new* variety, and informs me that I can see other *new* varieties at several places he mentioned. *H. G. L.*

VOLUSIA, FLORIDA, June 4, 1870.

[The oranges came to hand in excellent order, and were of fine quality and size, measuring nearly four inches in diameter. We are much obliged to our correspondent for affording us another opportunity to taste this fine new variety. — ED.]

THE TRANSACTIONS OF THE INDIANA STATE HORTICULTURAL SOCIETY have come to us in a neatly bound volume, giving the proceedings at the Ninth Annual Session, held at Indianapolis, January 4, 5, and 6, 1870, reports to the State society of various local societies, and a tabular list of fruits recommended, which, in the compass of half a dozen pages, contains an immense amount of information as to the hardiness, habit of growth, season, quality, and other characteristics of a great number of varieties of fruit. The appendix contains prize essays on the Apple, Pear, Grapes, and Small Fruits, and is concluded by gleanings and extracts from various sources, among which is the greater part of Mr. Saunders's article on Fall and Spring Planting, from the January (1869) number of this Journal, and the premium list for the next State fair. We are indebted for it to W. H. Ragan, corresponding secretary.

RICINUS. — CASTOR-OIL PLANT (*Palma Christi*). — Some of the species of Ricinus make the most magnificent of border annuals, often attaining the height of ten or twelve feet. The seeds should be sown in pots in heat, early in the season, and transplanted soon as the frosts are over, into a mass of light, rich soil.

Ricinus communis, is the common castor-oil plant. It has very large, peltate, palmate leaves; lobes lanceolate, serrated; stem herbaceous, frosted; capsules prickly. It is a native of the East Indies and Africa, and although an annual and herbaceous plant in our gardens, becomes in Africa a tree of several years' standing. In Candia it continues many years, and requires a ladder to come at the seed. The oil obtained is equal to one fourth of the weight of the seeds employed.

Ricinus sanguineus. — Dark red. Among the interesting and gigantic plants now in fashion for ornamenting lawns, there is none that exceeds this species in rapid growth, and in the grandeur of its enormous and elegant foliage, with its terminal spike of scarlet burrs, from one to two feet long. The flowers are not so ornamental as the burrs which succeed them, and which, as the seeds ripen, change to a reddish green, the color of the foliage. The stalks are of a dark red or purplish color. The leaves which, in the infancy of their growth are very delicate and beautiful, soon expand and stretch themselves into gigantic proportions. They are of the same shape and style as described under *R. communis*. The seeds are similar to those of that variety.

Mr. J. J. H. Gregory, of Marblehead, has favored me with the following description of a remarkable specimen of this interesting plant from a friend: —

"*Ricinus, red.* — Seeds planted in a hot-bed. Plants set out in the back yard, near my dwelling, rather shady, in good soil, where the manure from a hog-pen had been placed the winter previous.

"I raised several enormous stalks, — leaves quite four feet from stalk of plant to point of leaf. I did not measure the leaves.

"I bought the seed last spring, I think of you; but it is not impossible that I obtained it of some other person, as I purchased seeds of several persons, but Ricinus of but one; had several varieties.

"I send you the 'statistics' of one which goes ahead of all advertisements I have seen — I have the seed from it now: ten and one half feet to first branch of stalk, where the seed-stalk arose, which was two feet and three inches in height; eleven feet four inches to second branching, and to tip of stalk sixteen feet eight inches. There is a piece of the stalk, thirteen feet long, in the lot now. It measures, after being frozen during the winter, nine and one third inches around the stalk, just above the ground, and six and a quarter inches, ten feet from the ground. Burrs bright red, almost scarlet. G." *Joseph Breck.*

GREEN RUSSET, OR WINTER SWEET. — This apple is very heavy, very sweet, and very durable, and may, for the last-named property, be very desirable. On the other hand the fruit is hard, and the tree not very productive. They have been tried baked, and found to bake very well. A few trees for family use might be desirable. *Journal of Agriculture.*

THE LA CONSTANTE STRAWBERRY. — We are informed that our statement, that the extra fine basket of the above-named strawberry, exhibited by Mr. John C. Park before the Massachusetts Horticultural Society, July 2, was produced by thinning the fruit to a single berry on a plant, and which we made on what we supposed to be good authority, was incorrect. Would not it be worth while, however, to try what can be done with strawberries by such, or even less severe, thinning? Of course the small, imperfect berries, which try to make as many seeds as the larger ones, should be first removed.

THE CALIFORNIA GRAPE AND WINE CROP. — The valley of Sonoma is about twenty miles long, and four and a half to six miles wide; and there are about 5,000,000 vines now under cultivation. From these there will be produced this year not far from 3,000,000 gallons of wine. The entire state is said to contain 28,000,000 vines, and will yield this year not far from 5,000,000 gallons.

Of the 28,000,000 vines, fully 20,000,000 are of the Mission grape, and the balance are divided between Black Hamburg, White Nice, Rose of Peru, Zinfindal, Riesling, White Frontignan, Chasselas, Muscat of Alexandria, Muscatel, Flame Tokay, and Black Burgundy. Grape culture is only profitable to those who can make their crop into wine, and this requires a capital of at least $30,000. *Horticulturist.*

A PREMIUM PLANTATION OF OAK TREES. — We recently paid a visit to Indian Hill Farm, the estate of Ben. Perley Poore, Esq., at West Newbury, Mass., for the purpose of examining the plantation of oak trees which received the premium of one thousand dollars offered by the Massachusetts Society for the Promotion of Agriculture. These trees are now of thirty years' growth, and cover about five acres of ground on the slope of the hill. Many of them are forty feet in height, and as thick as a man's thigh. They are mainly white oaks, with a few black oaks, and some maples, walnuts, and ashes interspersed. Besides these, Mr. Poore has large plantations of forest trees, of every size, down to seedlings of one or two years' growth. He called our attention to the marked superiority of growth in the young trees, which had the advantage of shelter from older trees, in comparison with those exposed to every blast. He has found the plan, recommended by Forsyth, of heading down young trees, especially oaks, of great benefit, causing them to grow with much greater vigor. In the barn we saw floors supported on beams of the balsam fir, from trees planted by Mr. Poore; and there are many others still growing, and young seedlings springing up, from the seed scattered around. Most of the old fir trees have been injured by having the lower limbs removed; but a few, fortunately left untouched, were much the largest and finest trees of this species we have ever seen.

We can imagine no greater satisfaction than for a man to walk among such groves of trees, of his own planting, as we have described. The subject of planting trees for timber is now beginning, especially in the Western States, to receive the attention which its importance deserves, and we hope to give a series of papers on the subject from Mr. Poore's pen, and therefore omit any further remarks at present.

THE FRUIT CROP IN MISSOURI. — The past season had been a hard one on fruit growers in this part of Missouri. We have had almost no apples, pears, plums, and but few cherries, and about a fourth of a crop of peaches. Grapes did better; Catawba bore a heavy crop, and ripened well, and were of fine quality; Hartford Prolific, Concord, Virginia Seedling, Goethe, Salem, Massasoit, Wilder, Agawam, and others, were considerably injured by the frost on the 17th of April, but bore a tolerably fair crop of most excellent fruit. Dracut Amber, Ives's Seedling, Diana, and some others, bore a heavy crop of good fruit. The wine made this season from Catawba, Concord, and Virginia Seedling, promises to be of an excellent quality — in fact, it seems to be of a better quality than any vintage for the past five years. The crop of raspberries — that is, the Doolittle and Miami — was very fine. Strawberries not so good. The wood on all kinds of fruit trees, &c., has ripened very finely this fall; so we consider the prospect for a fine crop next season very flattering. *H. M. V.*

ST. JOSEPH, MO.

CINCHONA. — It is intended to try the experiment of cultivating the Cinchona, or Peruvian Bark, in California. Successful plantations have already been established in British India. The Carob tree is also recommended for trial in California.

STRAWBERRIES IN KENTUCKY. — A. D. Webb, Vice President of the Kentucky Horticultural Society, says, in the Western Ruralist, —

"I do not think I exaggerate when I say our soil seems peculiarly adapted to the production of this fruit, probably equal to any. I think this fact was fully demonstrated to every one who attended the meeting of our Farmers' Club, and witnessed the exhibitions made there, from time to time during the season, of berries measuring from four and a half to six inches in circumference, and weighing from one half to one ounce; these, too, in quantity, without any special culture, or any fertilizer being used.

"The varieties most popular with us this season were Charles Downing, Kentucky, Green Prolific, French's Seedling, Fillmore, and Russell, in the order named; all very large and fine. Since the introduction of the three first-named varieties, the old and much esteemed Wilson has been consigned to a back seat by some of our cultivators; yet it is perhaps a better shipping quality than either of the others, but cannot compete with them in uniform size and appearance.

"I certainly regard the Kentucky as the handsomest and most attractive berry I ever saw of the light color variety; good flavor, and very large size. There is certainly a debt of gratitude due Mr. J. S. Downer for originating and introducing the Charles Downing and Kentucky, both of which possess superior qualities, and are decided acquisitions. We have a number of other varieties on trial, but it will require another season to test their merits, if they possess any."

THE IONA GRAPE. — Dr. H. H. Farley, of Union Springs, N. Y., has found the quality of this fine grape much improved by grafting on other strong-growing sorts. Other cultivators have noticed the same effect.

THE PITMASTON DUCHESS PEAR. — This new pear, of which we gave an outline and description from an English journal, in our vol. vii., p. 239, has fruited in this country the past season, and, we regret to say, has not come up to its English reputation. We have tasted specimens grown near Boston, and also further south, and while we hope that it will do better in future years, we must at present advise our readers to plant the standard varieties rather than the Pitmaston Duchess, except for the purpose of testing it further.

MILDEW OF THE GRAPE VINE. — In Mr. Underhill's article on this subject, in our January number, on page 7, instead of the last word "above," read "on the next page." There was not room for the cut "above."

THE WASHINGTON ROYAL APPLE. — Mr. John Pettengill, of Bunker Hill, Illinois, writes to the St. Louis Journal of Agriculture, that the above apple, a native of Massachusetts, succeeds admirably at that place. It is fair, and free from insects, makes a beautiful round-headed tree, and grows well in both orchard and nursery. The fruit sticks to the tree tenaciously, and keeps all winter.

LIBERAL PRIZE FOR A NEW SEEDLING POTATO. — The late Mr. Levi Whitcomb, a member of the Massachusetts Horticultural Society, evinced his attachment to the society, and his interest in the objects it seeks to promote, by a bequest of five hundred dollars. By vote of the society, the income from this bequest is to be known as the Whitcomb Premium, and from this income a prize of two hundred dollars is offered for the best Seedling Potato which may be originated after January 1, 1871. Such seedling must be tested by a committee of the society for at least five years, and must be judged by them to be of superior quality. The first premium is not to be awarded prior to 1878.

AGRICULTURAL EXHIBITION AT TORONTO. — The Ontario Farmer contains the official prize list of the Provincial Exhibition at Toronto, 1870. The number of entries of fruit in class 30 was ninety-eight; in class 31, comprising the general list, from which professional nurserymen are excluded, there were eight hundred and fourteen entries of fruit; in class 32, garden vegetables, four hundred and fifty entries; in class 33, plants and flowers, one hundred and eighteen entries. So extensive an exhibition indicates that our Canadian neighbors are in earnest in their horticultural pursuits.

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

LILIUM THUNBERGIANUM FLORE-PLENO. — This is a remarkably ornamental hardy bulb, which has been obtained along with many other forms of the same species from Japan. Our sketch was taken from a plant which bloomed in June last in Mr. W. Bull's collection. This plant was about a foot or somewhat more in height. The stem was furnished with lance-shaped leaves three or four inches

LILIUM THUNBERGIANUM FLORE-PLENO.

long, and was surmounted by two flowers, which latter have the perianth segments recurved and spread out, so as to measure six inches across. In place of the usual six stamens, there are six erect, obovate, spathulate, petaloid filaments, which are deeply bifid, with the anther seated in the cleft. The color of the

flower is a deep fiery red, partially dotted with black. The petaloid filaments have a stain of crimson, and are paler at the edge, and slightly dotted.

This lily is quite different in structure from the double-flowered *L. tigrinum* exhibited last summer, in which the perianth segments were duplicated so as to form several overlying layers, all of the same shape and color.

T. W., in Gardener's Chronicle.

Sandall's Plum. — This is a beautiful black plum, which comes into use after damsons are past, and fully twice their size. It forms trees from twenty to forty feet high, with spreading heads, every twig as thickly set with fruit as the berries on a bunch of grapes. It is very hardy, and one of the very latest, supplying plums for cooking, etc., when wanted, until November. The fruit is of medium size, roundish, of a beautiful jet-black color, with a thick bloom; flesh reddish, clinging slightly to the stone, moderately juicy, with a smack of the sloe flavor. This little-known plum was raised sixty or seventy years since by the late Mr. Sandall, a market gardener, at Fulham. It is said to be a sure bearer, surpassed by Prince of Wales, Victoria, and Mitchelson's (the last especially); but it is at least eight or nine years before it begins to bear, though after that time it is a prodigious cropper about once in three years. Any one having half a dozen sorts cannot do wrong in growing Sandall's; but for a small garden, where there is only room for one plum, Mitchelson's is to be preferred.

Florist and Pomologist.

New Strawberries. — Besides the Abd-el-Kader, Amazone, Perfection, Gabrielle, Alexandra, Francois-Joseph, Passe Partout, and Penelope, raised by the great French raiser of strawberries, the late Dr. Nicaise, and which have already been described, we find in the Gardener's Magazine descriptions of —

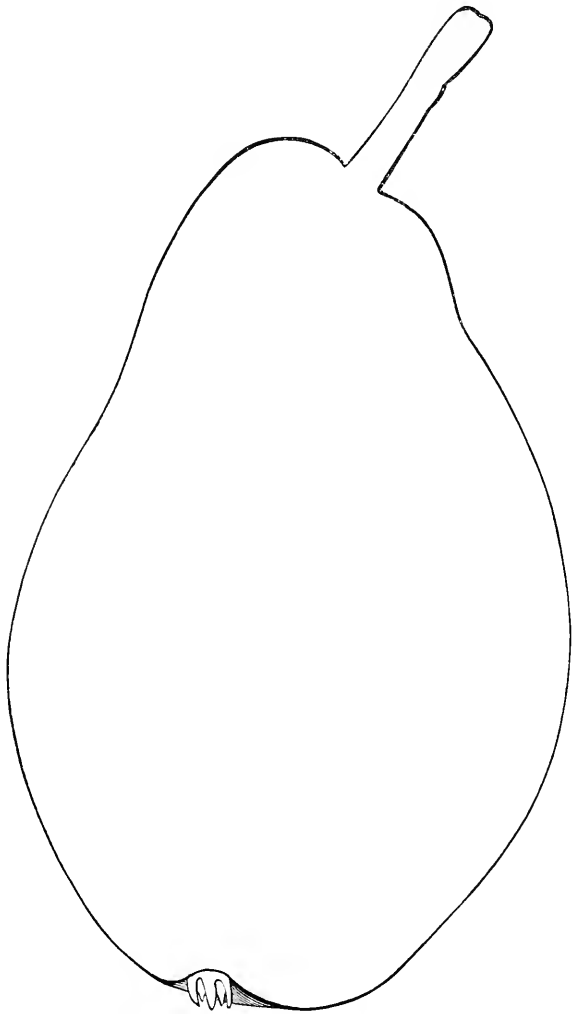
Melins. — Fruit large, flattish form, square at the summit, usually larger at the base, firm, bright red; seeds prominent, a good space between them; flesh white, full, rich, scented; plant somewhat small, but of good constitution; leaves very abundant, folioles elongated, and petioles hairy. Firm and good variety; very prolific.

Pauline. — Fruit large, very lengthened and narrow at the base; fine deep red, varnished; seeds sufficiently near, little raised; flesh red, juicy, sugary, rich, very good; plant extremely vigorous, foliage a fine shining green, petioles strong, bases very prolific.

Cyclamen persicum. — To keep these plants in a sitting-room, give them the warmest corner consistent with their having the advantage of a fair share of light. The same remark applies to primulas. The cyclamens do not require much water during the winter months, unless they are placed in a brisk-growing temperature. *Floral World.*

Heliotropes. — Monsieur Hamaitre is a fine large purple, excellent for winter flowering, and Surprise is a very fine dark sort. Voltaireanum is also a fine dark sort. *English Journal of Horticulture.*

BROCKWORTH PARK PEAR. — In September we are already so well supplied with good and useful pears, that new varieties seem scarcely to be required. It would appear, however, that good as our supply may be, and satisfied as we have



BROCKWORTH PARK PEAR.

been, there is yet room for improvement — yet room for another good pear, Brockworth Park.

This is an English seedling, and far in advance of nineteen twentieths of the

continental trash which is year by year forced upon us. It is, indeed, a first-class pear; and the standard is now placed high. It has been awarded a first-class certificate by the fruit committee of the Royal Horticultural Society. At the first glance it greatly resembles a pale Louise Bonne of Jersey. The fruit is large, pyriform, rather bulged in the centre. Skin smooth, pale yellow, slightly flushed, and streaked with crimson on the exposed side. Eye small, close, segments of the calyx pointed, set in a shallow basin, the end of the fruit being frequently blunt. Stalk about an inch long, stoutish, obliquely inserted without any depression. Flesh white, delicate, buttery, and melting, very juicy, rich, and vinous, exceedingly pleasant to eat, greatly resembling, in texture, the well-known Marie Louise. This we welcome as a valuable addition, and congratulate the raiser on his success. We believe it will be sent out by Messrs. J. C. Wheeler & Son, of Gloucester. *English Journal of Horticulture.*

Pruning Grape Vines. — In regard to vine pruning, Mr. D. Thomson remarks that, according to his experience, tested over and over again, the spur yields a larger but less compact bunch, more likely to shank than the hard produce of the wood closer home, which yields a more compact, neat, and serviceable bunch, and generally with larger berries and stiffer foot-stalks than the larger buds farther up the shoot. I hold it to be wrong, he says, to judge of the produce of a vine by the size of the bunch. The aim of the family grape grower is fine berries, and compact, moderate-sized bunches in great numbers. Tested by family usefulness, and commercially by the demand of the market, the smaller and compact bunch takes precedence of the big bunch. If serviceable bunches are wanted, he advises to prune back to one bud; but if larger, looser, and less serviceable bunches, then to cut to the fourth or fifth bud.

Florist and Pomologist.

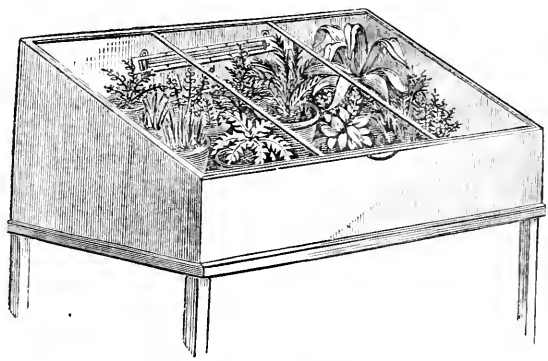
Lithospermum fruticosum. — Those who are searching for beautiful winter and spring flowering plants for cut flowers will find in this a very valuable addition. A few weeks ago I lifted several plants of it from our herbaceous garden. The plants, for they are of a somewhat procumbent habit, with a woody nature, were well set with flowering points. I potted them, and put them into a pit in a gentle heat near the glass; and since they have produced a fine lot of flowers of the most beautiful blue color, and which have been most valuable for small bouquets amongst white flowers. Indeed, I know of no small flower that is of such a beautiful blue at this season, equalling in color any of the finest Delphiniums. It is of the greatest advantage in the making up of bouquets to find materials for the proper contrast of color. *R. M., in Gardener's Chronicle.*

Wintering Iresine Herbstii. — Keep the plants in the green-house where they can have an abundance of light and air. They must not receive more water at the root than is necessary to keep the foliage from flagging.

Floral World.

A New Thornless Gooseberry is advertised in England.

A New Propagating Frame. — This is a remarkably cheap, simple, and effective propagating frame, invented by Messrs. Barr & Sugden, of 12 King Street, Covent Garden, which will be found invaluable to amateurs who are desirous of raising their own seeds and cuttings, but who have little or no glass. The construction of the cases is so simple, that with the accompanying illustration, but few descriptive remarks will be required. The cases are manufactured in galvanized iron in a substantial manner, and can be heated very efficiently with a remarkably small amount of trouble. A shallow boiler, the size of the case, is fitted in the bottom, and heated with either a lamp or gas, it matters not which.



New Propagating Frame.

When in working order, a layer of sand is placed over the bottom, and the cutting or seed pots partly plunged in the sand. A case of this kind has long been wanted; and we are glad to record the fact that the want is now supplied. With the aid of one of these cases and a cold frame, a stock of bedding plants for a small garden can be got up with a degree of certainty hitherto unknown. They will also be useful in large gardens for propagating choice stove and other plants during the summer and autumn months, when there is no hot-bed available for that purpose. *Floral World.*

Forcing the Lily of the Valley. — The Lily of the Valley is justly admired by every lover of early flowers; and too much care cannot be bestowed upon it. Lilies of the Valley are pretty generally used where any amount of early spring flowers is necessary; and sometimes we see them done in a very creditable manner, and in others very indifferent; indeed, the labor is often thrown away to no purpose, simply because people do not secure established plants, as the chief secret in forcing them is to have good roots, and those that have not been forced for two years previously. If they are continuously forced, they will produce only leaves, and those small and weak. It would depend, in a great measure, upon the purpose for which they are required as to the proper course of culture to adopt. If they are only wanted for cut flowers, they may be forced in large pans or boxes; but if for the conservatory, they must be forced in

pots. In either case, they must be previously grown in the open ground, or pots, or boxes, two years before they are required for forcing. For my part, I find when they are grown in a rich loamy soil under the shade of a north wall, three years is not too long if I require first-rate roots; yet such a soil and situation is the most favorable that we can give them, as they delight in a cool, shady spot; therefore, if the cultivator desires a thorough success, he will do well to give them that time to establish themselves; and then he may either force them in pans or pots, as the case may require. But when once a sufficient breadth of roots becomes established, and they are vigorous and healthy, a couple of years' growth after forcing will fit them for the work again — that is, provided they are carefully planted out again after they have done duty in the show-house, as they will then have two summers in which to recover themselves before they are wanted again for forcing. They do so well under this system of management, that I consider growing them continually in pots a needless affair, as when so grown an immense amount of labor must be bestowed upon them before they can compete in the strength of their flower-spikes with those grown in the open ground and potted up as here directed.

In the autumn, as soon as the leaves begin to lose their beautiful dark green color, they must be carefully lifted, and planted again in whatever they are to be forced in. Choose the strongest patches of roots, and those most likely to give the greatest number of flower-spikes. Secure as much soil with the roots as the depth of the pots or boxes will allow; press them in pretty firmly, and cover the crowns with half an inch of fine earth; but be careful to preserve the leaves, as they will help to encourage root action, and the pots will become nearly full of roots before winter sets in. When all are potted, give them a good soaking of water, and stand them in the shade; here they may remain till they are wanted, with just the protection of a mat in severe weather. As they are required for use, which ought not to be until the middle of January, as they will not do much good if forced earlier, they should be cleaned, and introduced first into a cold house for a week or ten days, then they may be taken into a temperature of 45°, with a rise of 5°, three weeks afterwards. This is the highest point at which they can be successfully forced, as if this is exceeded, the flowers will make their appearance without any leaves, which will render them comparatively useless. Hard forcing is the chief cause of failure of many a batch of roots, that would, if properly managed, give a fair return for the care taken with them. Should the flower show a tendency to come in advance of the leaves, take them into a colder house, and let them complete their growth naturally.

The striped-leaved variety is wonderfully beautiful; and I should strongly recommend its being grown extensively, as it is beautiful both before and when it is in flower, and is now procurable at a very cheap rate. *Floral World.*

THE Editors of "Tilton's Journal of Horticulture" cordially invite all interested in the various branches of horticulture to send questions upon any subject on which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to inquiries in regard to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to horticulturists.

We would especially invite our friends to communicate any little items of experience for our "Notes and Gleanings," and also the results of experiments. Such items are always readable, and of general interest.

We must, however, request that no one will write to the contributors to our columns upon subjects communicated to the Magazine.

Anonymous communications cannot be noticed: we require the name and address of our correspondents as pledges of good faith.

Rejected communications will be returned when accompanied by the requisite number of stamps.

GRAFTER. It is found advantageous to graft trees of straggling growth, like the Winter Nelis pear, standard high, and cherries grafted high on mazard stocks will generally escape injury when the trunks of those budded near the ground burst open. But these are exceptions to the general rule, that the earlier and nearer to the ground the union between the stock and graft is formed, the more perfect the union will be, and the more healthy and durable the tree.

T. A. D., Worcester, Mass. The grub referred to in our November number, as destroying strawberry plants, is the larva of the well-known June-bug, or Dor-bug, described in Packard's Guide to the Study of Insects under the name of *Lachnosterna fusca*. This insect, in its perfect form, is of chestnut-brown color, with yellowish hairs beneath, and nearly an inch in length. It is well known as flying into our houses in the evenings of June, and is very injurious to the leaves of fruit trees. The larva is a fleshy grub, white, with a brownish head, and, when fully grown, nearly as thick as the little finger. It is eaten greedily by crows and fowls. The beetle is figured in Harris's Insects (p. 30), and the larva and pupa by Packard (p. 455). We have not tried salt to destroy these grubs, but since we cut the paragraph referred to from the Rural World we have seen somewhere else a statement corroborating it.

We are indebted to J. E. M., of Portsmouth, R. I., for the following replies to queries in our January number: —

"On our sea-coast the Austrian pine does well, and so does the Scotch fir. To make the straw stay in place on strawberries I use dirt. A shovelful dropped in about four places, at a distance of three feet, is about right."

R. Y. A. There are two varieties of the Rose Acacia, or Moss Locust, as it is sometimes called. They are both well-known ornamental shrubs. One variety grows six or more feet in height, with rose-colored flowers in small, loose clusters. The other grows about two feet in height, and the flowers are of deeper color and the clusters larger and more compact. Both are propagated by suckers, which they send up freely, the former, indeed, so freely, and at such distances from the parent plant, as to be sometimes a little troublesome in small gardens.

Q. Q. We have before now remarked that we do not generally advise whitewashing the trunks of fruit trees, as it is injurious by forming a crust which excludes the air; neither do we like the looks of it. Still, when the bark of trees is found to be injured by the sun's rays, whitewashing may serve a good purpose by reflecting them, and under such circumstances we would advise its use.

Mrs. S. E. B., Clear Creek, Texas. The pretty flower which you send is quite interesting, as we seldom see flowers from your state. It belongs, however, not to the everlastings, but to the Rumex, or dock family, and is named *Eriogonum tomentosum*. We should be very glad of seeds or roots of any of your native plants.

S. W. T. The white dust on your pea vines is mildew. In this country it is so injurious to late-sown peas that it is useless to attempt to keep up a succession of peas through the season, as is done in England. That skilful cultivator, T. A. Knight, says, "The cause of this disease is a want of sufficient moisture from the soil, with excess of humidity in the air, particularly if the plants are exposed to a temperature below that to which they have been accustomed. If

damp and cloudy weather succeed that which has been warm and bright, without the intervention of sufficient rain to moisten the ground to some depth, the crop is generally much injured by mildew." Mr. Knight proved the truth of this theory by warding off mildew by copious waterings of the roots. Sulphur, which is destructive to all fungous growth, will subdue mildew, though it does not remove the cause.

L. A. The idea that trees planted while the moon is growing thrive better than if planted while it is waning, is entirely without foundation. It is on a par with the idea of producing a red peach by cracking the stone and putting in a little vermilion.

W. N. G. The ants do not produce the aphides, or plant lice, but the latter discharge a sweet fluid, which the ants are very fond of; and this is the reason why they are always found in company with the lice. You will find some interesting remarks on plant lice by Mr. Breck in our vol. vii. p. 172.

J. Q. R. Little is known of the stocks used by the Chinese for producing their dwarf trees. Probably they depend less on the stock than on the treatment. This consists in planting in small pots, and stinting the supply of nutriment generally. They are of interest only as curiosities; but if any one likes to see a decrepit and venerable oak tree a foot and a half high in a flower-pot, we must confess that, however curious, it is not an agreeable object to us.

The Paradise stock is commonly propagated by layers. It has no affinity whatever with the Summer Sweet Paradise or Winter Sweet Paradise apples. These are varieties of the common apple.

D. S. H., Macomb, Ill. The plant of which you send flower and leaf is, as nearly as can be judged, *Vallota purpurea*, of the Amaryllis family.

C. G. P., Charlotte, Vt. From your description we think your *Tigridia* is either *T. conchiflora* or a seedling from it.

Reader, 39 West 23d St., N. Y. The only way to improve your lawn, if you do not wish to go to the trouble of ploughing and seeding, is by top-dressing. Any kind of manure will answer. If it is fine or well rotted, it may remain on; but if coarse manure is used, it should be applied as early as possible in spring, or in open weather in winter, and the coarse part raked off when the grass begins to start. If you like white clover, wood ashes will promote its growth. Superphosphate of lime has been found excellent, causing a fine growth of grass on poor, sandy land, when efforts to secure its growth for several years previous had been in vain. But be sure and get a pure and genuine article, or else make it yourself. A mixture of two hundred pounds of guano and four hundred pounds of ground plaster to the acre is excellent. It should be applied by the first of May. See "A Chapter on Lawns," by Mr. Breck, in our vol. v. p. 220.

S. M. S. The little bugs in your seed peas are the pea-weevil (*Bruchus Pisi*). While the pods are young and tender, and the peas are just beginning to swell, these insects deposit their eggs in punctures on the surface of the pods. As soon as the grubs are hatched, they enter the nearest pea by a hole so small as hardly to be perceived, and feed upon the marrow of the pea, but generally leave the germ uninjured. If the peas are kept over a year, the insects will be found to have left them, and their vegetative powers will still remain; but in order to get rid of the insects, *all* the peas planted must be a year old. It is said that putting camphor with the seed peas when they are gathered will destroy or banish the insects. We have not tried it, and feel rather doubtful of its efficacy; still it is so easy that it is worth trying even on a small chance of success.

J. M. We do not know what improvement in lawn mowers may be brought out the coming season, but at present the best one is the Landscape Lawn Mower. It is an improvement over those formerly in use, being simpler and more easily repaired, and sold at much less price. The person to whom any lawn mower is intrusted should, however, be at least tolerably intelligent, or he will be very apt to injure it. The mower should be used often enough to keep the grass short, and only after the dew has dried off. It is pretty play enough to use one for a few minutes; but when it comes to cutting the whole of even a small lawn, it is very much like work, and, if the grass is too long and wet, pretty hard work.

Mr. Editor: In reply to the inquiry of S. H., on p. 365 of your last volume, I regret to say that the seeds of the purple beech were eaten, not planted. In Loudon's Arboretum Britannicum, vol. iii. p. 1950, several instances are given in which the Copper or Purple Beech has fruited, and the seeds been planted. "The seeds, in general, come up tolerably true, though in some the shade of purple is very faint, and in others the leaves are quite green;" and again, "every variety of hue was observed, from green to purple, but none completely either green or purple." The variety is usually propagated by grafting.

J. J. D.

We thank J. J. D. for his reply to the second query of S. H., and add the following paragraph, on the same subject, from the last number of the Florist and Pomologist.

"Doubts have sometimes been expressed as to whether seedlings of the *Purple Beech* will come colored purple. Mr. Mills, of Enys, notes that some six or seven years ago he found several seedlings under a Purple Beech, and that these are still equal in color to the grafted trees from which they were raised. The size to which they have grown — about eight feet high, with branches from four feet to six feet long — sufficiently proves their permanence."

THE MEXICAN TIGER FLOWER.

By Joseph Breck, Ex-President of the Massachusetts Horticultural Society.

The scientific name of these splendid flowers is *Tigridia* (formerly *Ferraria*), in allusion to the spotted flowers, which are marked something like the skin of the tiger. We have two common species, which are easily cultivated. The flowers of *T. pavonia* are of the richest scarlet imaginable, variegated with bright yellow, spotted with black. *T. conchiflora*, when planted with the scarlet variety, makes a pleasing contrast. The flowers are of a rich orange, variegated with light yellow, spotted with dark brown or black: there is a variety, also, without spots.

Mr. Bernard M'Mahon, of Philadelphia, after an experience of thirty years as gardener, florist, and seedsman, published, in 1806, a very valuable work entitled the "American Gardener's Magazine," which was a standard on the subject of horticulture for the time, and is still regarded as a work of great merit by the present generation of horticulturists. He gives the following minute and glowing description of this beautiful flower, then a great novelty. He calls it the *Mexican Ferraria*, or Tiger Flower.

"The *Ferraria tigridia* of Curtis, or *Ferraria pavonia* of Linnæus and Willdenow, is of such exquisite beauty as to merit particular attention. It is of the class *Gynandria*, and order *Triandria*. Its root is a truncated bulb, producing from one to four stems, from eighteen inches to two feet in height, composed of various joints, and bearing at each a plicated, oblong, lanceolate leaf, from a sheathing petiole the length

of the internode, and at the summit an involucrum, apparently consisting of two lanceolate, ancipital, conduplicate, nearly equal valves, of which the exterior is, in fact, the common spathe or involucre, and embraces the interior with its contents; the interior valve, which is exactly opposed to the outer one, is the proper spathe of the first flower, and embraces it, together with the spathes and flowers that are to come in succession; the spathe of the second flower is opposed to that of the first, and placed between it and the pedicel of the first flower; and so of the rest, every spathe being opposed to the one of the preceding flower, and embraced by it. These spathes are similar in shape, but diminish progressively, and become more membranaceous. The corolla, or flower, is large, and divided into six segments, of which the three outer are urceolate at the base, expanded above, and reflected at the base; the three inner ones smaller by half, biformed, singularly divided into a lower hastate and an upper ovate division by a depressed intersection; the upper division is of the richest scarlet imaginable, variegated with a bright golden yellow. The filament is a cuniculated, or piped, triquetral column. The anthers are sessile, erect, bearing their pollen on the outside, conniving at the point, diverging below, to admit the exit of the stigmas. The germen is obtusely trigonal, three-celled. Style, the length of the filamental column, through the hollow of which it passes. Stigmas, three, filiform, bifid. Capsule, oblong, obtusely trigonal, three-celled. Seeds, in double rows in each cell, and round.

"Hernandez, a Spanish physician, who was sent to Mexico by Philip II., King of Spain, informs us that it grew wild about the city, and was much cultivated for its excessive beauty, and for the medicinal virtues of its roots, being, as he terms it, 'a frigefacient in fevers,' etc.

"This flower has no scent, but in splendid beauty it has scarcely any competitor. It is born to display its glory but a few hours, and then literally melts away; but to compensate for this sudden decline, it continues to produce flowers for several weeks."

With this detailed and minute description of the *Tigridia*, Mr. M'Mahon has omitted to make mention of the beautiful dark spots on the petals, which characterize the flower and give to it the specific name. He says, "It is properly a green-house plant, succeeds best in light mould, and is easily propagated by seeds, from which the plants will flower the second year." It succeeds equally well in the open ground. The bulbs should be planted about the middle of May, two inches deep, in any rich, light, garden soil, requiring no particular care. It commences to flower in July, and continues to give a succession of bloom until hard frost. In the latter part of the season the flowers remain

without decay much longer than in July and August. The bulbs and offsets should be taken up the last of October, and dried, where they will be secure from frost, as freezing would be their destruction. They

MEXICAN TIGER FLOWER.

may be kept, when dried, in dry sand, sawdust, or moss, until the time of planting in the spring. The mice are very fond of the roots, and if they find them, very few, if any, will be left to plant.

A SHORT LIST OF APPLES, OLD AND NEW.

By Suel Foster, Muscatine, Iowa.

Mr. Flagg, of Alton, Ill., gave, in the Journal for January, 1870, a list of fourteen varieties of apples; and his experience in orchard culture is, probably, equal to any man's in his region. Several in his list we would not consider number one, two hundred miles farther north. My experience of sixteen years has taught me to change my list some every year, until I now find myself moved almost entirely off of the old foundations. For instance: Red June, Fall Wine, White Winter Pearmain, Winesap, Gilpin, and many others, ten years ago were very generally put in the list as number one; now we find we can substitute better varieties. One cause is, as the trees become older, the fruit becomes smaller; and of most of these varieties the fruit is scabby and quite unsalable. No doubt a part of this defect is owing to a disorder well known, but not generally recognized, namely — *neglect.*

Varieties ripening in the order named: —

Summer. — Alerson's Early, Red Astrachan, Sweet June, Duchess of Oldenburgh, Warfield, Benoni.

Fall. — Dyer, Late Strawberry, Peach Pond Sweet, Kentucky, Maiden's Blush, Baily Sweet, Fameuse.

Winter. — Jonathan, Domine, Talman Sweet, Ben Davis, Striped Sweet Pippin, Wagener, Grimes's Golden, Rawle's Janet, Willow Twig.

Well, now I have got the list one third longer than I ought to have it, and yet I have left out a dozen of my varieties, such as Fall Orange, Lowell, Porter, Roman Stem, Red Canada, and some good long-keeping sweet apples, which I am intending to bring out in a few years — something better than the Sweet Romanite.

Here are several of the varieties in the above list the public are unacquainted with, and need a little explanation about.

Alerson's Early. — Not found in any of the fruit books or nursery lists that I have seen. We obtained it of J. W. Frazier, of Salem, Iowa; he of one of his neighbors, who brought it from Salem, Ohio. It is the earliest, sourest, best pie apple I know of. Tree rather stout grower, upright; very large, green leaf; twigs thick, with a large bud. I think it will prove only what we call half hardy. Fruit rather large, irregular, green, becoming light-yellow when ripe. Season, July and first half of August.

Warfield. — I think this is the most perfect apple tree I have in my nursery or orchard. It has one fault which many other varieties have in the nursery: when one and two years old, some seasons, when a sudden freeze comes on in the fall, the bark bursts at the ground. Much destruction to trees was done last fall, from this cause, throughout nearly all the north-west.

This is a seedling, native of Muscatine County, which I obtained of my neighbor, D. R. Warfield. It is hardy, I think quite hardy, the original tree having stood twenty years near me, through some very severe winters. Tree very thrifty, spreading, pyramidal, with a peculiar stout knot where each limb comes out; bark light-reddish; leaf large; bears young and very abundantly; fruit above medium, very round, fair, and beautiful, light waxen yellow, with a very delicate tinge of brown on the cheek. Season, August and September. Quality second rate.

Kentucky (or *McWhorter*, for him who brought it to notice in this region). — Mr. McWhorter, of Mercer County, Ill., has had this apple in cultivation more than twenty years, having obtained the scions of a Kentucky farmer, who was among the very earliest settlers at Henderson Grove, Knox County, Ill. It is a superior fall apple, and Mr. McWhorter must be called to an account for not making more fuss about it long ago. However, he atoned, in part, for his modesty, last fall, at our State Fair, by awarding it, as chairman of the committee, the first premium as a cooking apple, and I find very few superior as an eating apple. Tree thrifty, early and abundant bearer; may not prove very hardy; fruit rather large; profitable at home and market.

Some of us (not many though, yet) have got a glimpse of Grimes's Golden, in the orchard and out of the orchard, and a taste of it; and I am of opinion it is to be the coming winter apple for the west, and you will want to try it down east too. It was brought into Lee County, Iowa, and Cedar County also, many years ago, and yet its spread has been very slow; but its excellent quality is becoming known, and the trees are called for, and can be furnished only in small quantities, at double price. Warder describes it, "Flesh yellow, firm, breaking, rich, refreshing; quality very best; used as dessert, too good for aught else. Those who have tried it say it is excellent for cooking. Season, January to March." I would say November to March, and probably we shall have to say early winter, unless it is very carefully handled.

If we want profitable orchards, we must give more attention to the quality and productiveness of the tree; this is the starting-point.

THE EGYPTIAN BEET.

By Fearing Burr, Hingham, Mass.

Looking over the varieties of table beets which have been introduced within the last forty years, we find no one for which we could afford to exchange the old, familiar, early turnip-rooted. It is good in summer, excellent also in winter, and no garden beet in cultivation surpasses it in hardiness or productiveness. Almost every market-gardener in the country grows it, because it yields abundantly and sells readily; and there is scarcely a family garden where it does not find a place, because of its early maturity and excellent quality. Further than this, it may be stated as a fact, that the quantity of early turnip-rooted beets grown and consumed in this country exceeds that of all other table beets combined.

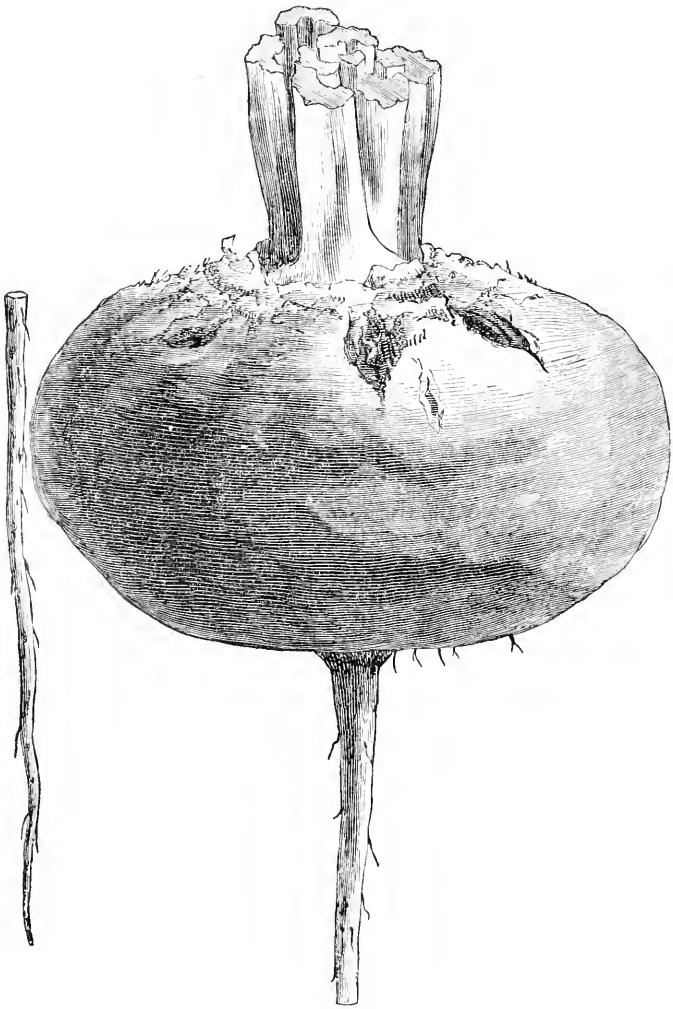
But notwithstanding this, the cultivator will find in the new beet now figured, and which was introduced from Egypt three years ago, an acceptable, and even valuable, acquisition. So far from being but an improved stock of some long-established sort, the Egyptian beet is quite distinct in form, manner of growth, and particularly in the smallness of the seeds, which are scarcely one half the size of those of the common turnip-rooted.

The leaves are few in number, of small size, and more or less deeply stained with blackish purple, or purplish red. The bulbs, which are much flattened, and smaller on the average than those of the last named, are produced mostly above ground, resting on the surface like the bulbs of the common Dutch or strap-leaved turnip. Well-grown specimens will give a general average of a little less than three inches in diameter and an inch and a half or two inches in depth. The flesh is fine and tender in texture, the flavor is sweet and excellent, and the deep, rich color is well retained after boiling.

To secure the roots in their greatest perfection they should be pulled before they attain their full size. When overgrown, or if allowed to stand long after maturity, they become, like those of all table beets, tough and fibrous.

The Egyptian beet attains a size fit for use fully one week in advance of the early turnip-rooted. Indeed, it is decidedly the earliest beet known to us, and is probably the earliest kind now in cultivation.

From its peculiar form, and manner of growth, it is well adapted to thin, gravelly soils, and it is said to reach a fair size and tolerable state of perfection in localities where the soil is too thin for the production of any other variety.



Egyptian Beet.

Judging from a single experiment, the seed ripens slowly, and is produced sparingly. The necessarily limited yield, and the small size of the seeds, must ever prevent the article from being nominally low priced.

THE MANURE QUESTION.

THE subject of fertilizers is one of the most important that can possibly engage the attention of cultivators of the ground, whether on a small or a large scale. From various quarters complaints come to us of the difficulty of procuring the manures wanted in gardens. This deficiency is especially felt by those living in localities where the love of gardening has extended so as to create a demand for manures, which was formerly supplied by such as could be bought of persons who kept horses or cows, but had no gardens of their own. This source is now quite insufficient, and is every year growing more so. Thirty or forty years ago, wood was the only fuel used in New England, and wood ashes — unleached or leached, in either case, but especially the former, one of the most valuable fertilizers — were easily obtained. To-day, in all our cities and large towns, coal is used much more generally than wood, and every year diminishes the number of wood burners, even far into the interior of New England.

But what has become of all the manure that has been applied to the ground since men began to dig it and dung it ? The greater part of it — of such, at least, as has been taken up by the crops which it was designed to enrich — has been consumed by men and animals; a part of it has entered into the substance of their bodies, a large part has been excreted from their bodies, passing into the air in a gaseous form, to be washed down on to the earth by the rain, — some of it where it was wanted, and some where it was not. Another large portion has been disposed of in the form of solid excrement, and of this a considerable part has been returned to the land; and, in cities especially, another part has found its way to the ocean, where, after having created a nuisance in the docks, it may serve for the food of marine plants, — and these may nourish fishes, which, in their turn, may become food for man. Of the potash, which in the form of firewood has been taken from the ground, a great part has been used in the manufacture of soap, and most of this has found its way either into the sesspool, to be from time to time returned to the land, or into the all-receiving ocean.

There is no doubt that with the increase of population and the necessity of producing the utmost possible quantity of food and clothing from the land, and with the increase of wealth which is continually demand-

ing more highly-cultivated products, the demand for fertilizers may be expected to increase.

We have briefly traced the disposition made of the refuse of the products of the ground; but it will be seen that only a small part of it goes where every particle of it ought to go, viz., back to the land from which it was taken. And we have done this for the purpose of impressing on the minds of our readers the duty of sacredly returning to the earth all the refuse of their houses and grounds, as well as of their stables and barns. If this were done, there is no doubt that, with the absorption by the soil of plant-food from the air, the land would continually increase in fertility, instead of decreasing. As one means of economizing valuable fertilizers, the earth-closet, which is but the application of a principle known as long ago as the time of Moses, is an immense improvement over the plan of washing them into streams and docks, which does but remove a nuisance one step from us, to be encountered again at the next.

Besides the careful husbanding of all animal and vegetable refuse matter, the judicious use of phosphates and other mineral manures is capable of supplying the want of barn and stable manure. On this point we would refer to an address delivered at the Farmers' Meeting, under the auspices of the State Board of Agriculture, at Framingham, Massachusetts, by Dr. James R. Nichols, who, in the last seven years, has entirely renovated a worn-out farm in Haverhill by the use of phosphates, ashes, fish pomace, guano, potash, lime, sulphate of magnesia, nitrate of soda, and other salts. To obviate one of the greatest difficulties in the way of using these substances, viz., their adulteration, — even wood ashes having been mixed with fifty per cent. of coal ashes, — Dr. Nichols recommends that farmers should associate themselves together as the farmers of England do, and manufacture their own fertilizers. At any rate, it is impossible to use too much care in purchasing, to avoid buying an article worth only half what is asked for it, if indeed not absolutely worthless.

Another suggestion that we would make is, that when guano, or any other fertilizer that has been used with good effect, ceases to be beneficial, it should not lead to the condemnation of all specific manures, but should be taken as the indication that some change is necessary, and the physical and chemical characteristics of the soil should be studied, to determine what other substance or combination will be most effective. A rotation of manure is as beneficial as a rotation of crops. Even stable manure becomes partly or wholly ineffectual when used as the sole fertilizer for a series of years, and a great gain has been

experienced by making a change no greater than that from horse to cow manure.

The points which we have touched on might be elaborated, had we space, to ten times the extent; but our main object has been to impress all with the necessity of avoiding all waste of fertilizing material, and of utilizing every substance that can take the place of the manures which were once so ample, but are now more and more insufficient; and we end as we began, that the subject is of the highest importance, not only to the cultivator of the ground, but to every one who eats food or wears clothing, for not merely the food of animals and men, but every fibre of clothing, comes more or less directly from the ground.

PROTECTING TREES FROM CANKER-WORMS.

By T. C. Thurlow, West Newbury, Mass.

Seeing an excellent article under the above heading in your October number, from Mr. Barker, of Cambridge, it occurred to me to suggest something cheaper, and which has proved in this vicinity quite as effectual, viz., *printers' ink*. Mr. Barker recommends boxes to be placed around the trees, to which are fastened zinc troughs filled with oil. The lowest cost of the boxes and fixtures he estimates at two dollars per tree. I have seen these in various places around Boston, and have no doubt that if properly adjusted and carefully watched they will prove efficient, and probably for a few trees in a city lot this would be the best protection. My observation of the canker-worm has been mostly confined to Essex County, Massachusetts, and Rockingham County, New Hampshire, and extends back to about 1860. Previous to that time they had not been seen here (except in a few localities) for many years. Many of the farmers at that date had hundreds, or even thousands, of apple trees, generally young, and just commencing to bear. The destruction of the trees has in many instances been frightful, and in some almost total. A large part of the orchardists have done nothing as yet to protect their trees, trusting that through the "natural course of events," an untimely frost, or some other freak of nature, their trees might be rid of these pests; but they have generally waited to their sorrow. Some, at the start, commenced to tar, others to apply the various "patent protectors;" but we hear very little of either at present.

Some six or seven years ago it was found that printers' ink was better than tar, especially as it did not require to be applied as often, which, with most people, was quite an item. But no sooner was there a demand for the ink than various unprincipled dealers offered an article so extremely mean that many abandoned it in disgust. We have for three years used the ink from the factory of Messrs. W. C. Donald & Co., 25 Milk Street, Boston, and believe it to be a good article. They have recently made an improvement, in not putting in the usual *drying* material. We are not alone in this opinion, for some of the most intelligent and *practical* farmers in this county have testified to the same result. My neighbor (a candid and enterprising farmer) assures me that he can protect his trees with ink for *eight cents* each, reckoning time and material. He has four hundred trees (average about one foot through), costing thirty-two dollars per year. He last fall obtained three hundred barrels of apples, and two years before, I think, about two hundred and fifty barrels. He applies the ink only in spring, commencing very early, which secures to him a good crop of fruit, and an annual growth to his trees. We have this year applied the ink to about eight hundred young trees, at a much less expense than the above. The grubs have sometimes encroached upon our nursery-grounds, and have been driven back *only* by entirely abandoning the raising of apple trees. Though I believe that the only way of exterminating them from the orchard is to commence in the *fall*, immediately after the first hard frost, and also during any protracted warm weather in winter, still I have seen very good results from protecting the trees only in *spring*, and have sometimes thought that perhaps our severe winter weather might destroy the eggs, which, unquestionably, are laid in abundance in the fall; I have also noticed numerous small birds very actively pecking among the branches late in autumn.

Hoping that these few hints may be acted upon by my fellow-sufferers *promptly* (for delay is dangerous), I will try and describe the method which is most successfully practised in this vicinity.

Procure common tarred paper by the roll (from three to four and a half cents per pound), cut it off in sections five to eight inches long with a wood-saw (a large tree requiring a wider piece than a small one), proceed to the orchard with a roll of this paper, a hatchet, and a box of small tacks; take a turn of the paper around a tree, and tear it off at the proper length; apply it at a smooth place just below the branches, making it as tight as possible, especially at the top, and secure with about three tacks. Procure your ink in fifty or one hundred pound kegs, at about ten cents per pound. Reduce with oil (*rosin* oil pre-

ferred), so as to be easily applied with a common paint-brush. Give a good coating at first, commencing near the top of the paper. Apply as often as necessary — once in two or three days in cold weather, but as the weather gets warmer, once in a week or ten days. If the grubs run freely, they must be looked after every day, or they will soon bridge across. Apply the ink in the fall (also during winter, if it should be unusually warm) and very early in spring, about the last of March, remembering to give one or two applications in May, to catch any of the young worms that may be hatched below, and which would immediately crawl up the tree. Sometimes one or two applications may be necessary to catch the *travelling* vermin after they have eaten other trees. After this remove the papers, as they often injure the trees if left on during summer. If faithfully followed up the first year, you will find very little trouble afterwards, unless, as is too often the case, neighboring orchards are allowed to raise up a hoard to try your patience the next year. I would say, *emphatically*, to every one living in a canker-worm district, *cut down* every tree that you do not protect or care for.

PEACH GROWING IN THE VICINITY OF ST. JOSEPH, MICHIGAN.

By J. A. Donaldson, St. Joseph, Mich.

The summer succeeding the hard winter of 1855–6 revealed the superior advantages of this locality for peach growing. While nearly every part of the north lost its trees by that winter, St. Joseph, the season following, shipped a small quantity of fruit to market. Extensive orchards were planted the next year, and each succeeding year thousands of trees have been set, notwithstanding that nearly every one engaged in the business has been, for years, expressing his fears that the supply would far exceed the demand when all the trees arrived at a bearing age. But the demand of the growing cities and villages on the other side of the lake — where a peach tree cannot survive a single winter, except an extraordinarily mild one — has kept pace with the supply; and prices have always been remunerative for good fruit, well put up and well handled.

The varieties planted in the first orchards were mostly Serrate Early York, Cooledge's Favorite, Large Early York, George the Fourth,

Crawford's Early, Oldmixon Free, Morris's White, Crawford's Late, and Smock Free. Later, Hale's Early, Troth's Early, Early Barnard, Jacques's Rareripe (the variety with reniform glands), Hill's Chili, Stump-the-World, and Keyport White, have been added. Other varieties have been introduced, but not extensively planted. The Crawfords were at first the most popular varieties, and in many orchards more were planted of these than all other varieties put together. This was soon discovered to be a mistake; for, when the Crawfords were ripe, peaches were so plenty in market that they did not bring so much as smaller and less attractive kinds that ripened before or after. On this account, and the fact that they are not so hardy as many other varieties, very few Crawfords have been planted for the last six years.

Hale's Early, when first introduced, on account of great hardiness, early bearing, and early ripening, was very extensively planted; but its tendency to rot has been so great the last few years, that few trees are now planted of this variety. Serrate Early York was soon discarded, as both tree and fruit mildewed very badly. Cooledge's Favorite has proved a very sure bearer, but is not very popular, because it is generally small from overbearing. It is a beautiful peach when well cultivated and properly thinned. Troth's Early has been dropped from the list, as the crop is frequently lost from the curl of the leaf. George the Fourth and Large Early York are no longer planted for market, as they are moderate bearers, and ripen with Crawford's Early. Early Barnard, although ripening with Crawford's Early, is planted quite largely, as it is hardy, and frequently bears when Crawford's Early fails. Jacques's Rareripe has been planted extensively the last few years, but does not prove a reliable bearer with some, while with others it stands with the first for hardness. It is said it does not do so well on heavy soil. If its color was deeper, it would sell better. Oldmixon Free maintains its popularity, as it is hardy, of first quality, and ripens at a time when peaches are not very plenty in the market. Morris's White is a moderate bearer; very few are now planted. Hill's Chili is an unattractive peach, very downy, and ripens with Crawford's Late; but, as it is very hardy, and bears when that variety fails, it is planted quite extensively. Smock Free stands pretty high for profit, as it is hardy. It requires a warm soil and warm season to give it good color. Keyport White ripens with the Smock, but is not so reliable, and does not sell as well.

The culture the orchards get varies according to the energy of the proprietors, and their faith in the good effects of stirring the soil. While the most of them receive fair attention, only a few are cultivated well throughout the entire season. The owners of these are generally

cheerful, hopeful, and satisfied: for their fruit catches the eye of the purchaser first, and is sold in the morning, at good prices, while much of that from neglected trees remains unsold until late in the day, and is then sold at any price, to make room for the next morning's shipment. But few thin their overloaded trees: that is considered, by most of the orchardists, the curculio's job. Systematic *shortening in* is not practised.

The packages used, when the fruit is to be sold in Chicago, are baskets. These hold about one third of a bushel, and are well rounded up; not because the grower desires to give good measure, but because the fruit appears to a much better advantage, and sells better.

The covering formerly used for the baskets was pink mosquito bar; but now nothing but beautiful red tarletan will answer, costing from three dollars and fifty cents to four dollars per piece.

The baskets are now principally made of heavy veneer, turned from white-wood logs, and strengthened with hoops, and cost the fruit-grower six cents each. Boxes of the same capacity are made of the same material, with half-inch boards for end and middle pieces. They have heretofore been preferred for shipping long distances by rail, as they can be packed in the car to much better advantage: but last season a basket was introduced, constructed so that one basket could be set on another without injury to the fruit, by having two staves project far enough above the fruit to support a cross-piece about three inches wide, which sustains the baskets resting upon it.

Should this basket prove of sufficient strength, it will probably take the place of boxes for shipping in the cars. Since packages have been furnished so cheap, none are returned.

The crops since 1866 have been very satisfactory. We have had two full and two moderate crops the last four years.

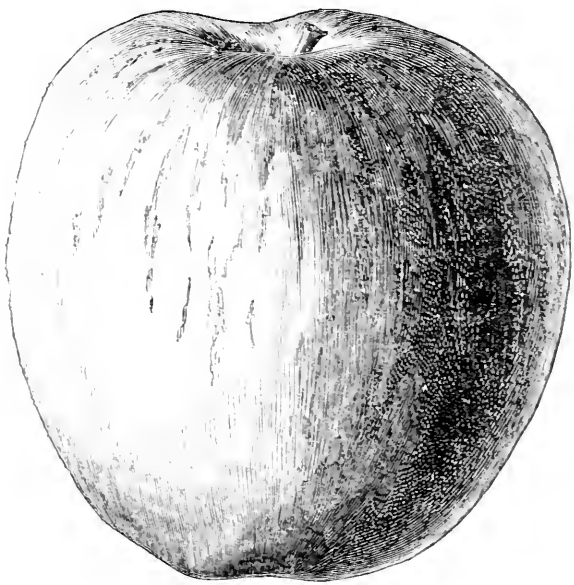
SCILLA SIBIRICA.

For a mass of brilliant blue in the spring garden, this little bulb is indispensable. It blooms about the 10th of April, and the flowers continue long in perfection. It is perfectly hardy, though rather apt to rot in a cold, damp soil: therefore in planting a little sand should be mixed with the soil.

The bulbs are small, and resemble little hyacinths: they should be planted in October, and remain undisturbed. They will increase, and soon form clumps, which will bloom beautifully every spring. *R.*

THE BEN DAVIS APPLE.

THIS variety, though in quality ranking only as *good*, is found so profitable as a market apple in the west and south-west, that it is more sought after and planted than any other. Having been long cultivated under the name of New York Pippin, it was supposed to be of eastern origin; but it is more probably a native of Kentucky, as very old trees are found there, from which it is propagated by suckers.



BEN DAVIS APPLE.

The tree is healthy and vigorous, of spreading form, bearing early and abundantly, and growing to a large size. Fruit large; form regular conical; stem slender, sunk in a deep, narrow cavity; calyx open, in a rather deep basin of moderate width, slightly plaited; color pale yellow, mottled with red towards the sun, and streaked and clouded with deeper red; skin smooth and glossy; flesh white, tender, moderately juicy, of mild, sub-acid flavor, but not rich; core rather large, with narrow cells; seeds plump and brown.

It is planted only for market and cooking, as its quality is not such as to adapt it for family gardens. Blooming late in the spring, it is not

subject to be injured by frost, and the fruit, which is in use from December to March, keeps and carries well.

Like all other widely-cultivated fruits, its numerous synonymes attest the estimation in which it is held. Besides the synonyme of New York Pippin, given above, it is known as Virginia Pippin, Kentucky Red Streak, Carolina Red, Funkerhouser, Hutchinson Pippin, Baltimore Red, Joe Allen, Victoria Red, Victoria Pippin, Red Pippin, Kentucky Pippin, and Baltimore Pippin.

CHEAP TRELLIS FOR TOMATOES, Etc.

I PLANT posts (common fence posts will do) about thirty to fifty feet apart, in the rows of tomatoes, or other plants to be trained; then stretch lightly, from post to post, two No. 16 wires (galvanized is best), one about eighteen inches and the other thirty-six inches above the ground. At intervals between these posts I drive down two or three small stakes, and tie the wires to them, to prevent their sagging or moving sidewise too much. For tomatoes I thoroughly enrich the soil, and set the plants about four feet apart. As they grow, I train them in fan shape by loosely tying the branches, first to the lower wire, and in due time to the upper wire. All side shoots not needed to cover the space allotted to each plant are pruned away, and the others, after growing three or four inches above the top wire, are pinched in, and kept at this height. Thus each vine covers about twelve square feet of space. They are fully exposed to sun, light, and air; they ripen well and early; the fruit does not rot nor get soiled, and is very easily gathered; and vines thus trained produce abundantly.

This mode of training has been very successful with me. I use the same kind of trellis for blackberry and raspberry vines or bushes, placing wires at heights to suit, and find them the cheapest and best of anything thus far tried. A pound of No. 16 wire contains one hundred and two feet in length, and costs fifteen to twenty cents. This makes a cheaper trellis than wood, and is far better in many respects, and is easily kept in repair, or may be removed and put up again without much labor. *T. B. R.*

NEWCASTLE, IND.

ABUTILON THOMPSONI AND OTHER VARIEGATED-LEAVED PLANTS. — The soil has nothing to do with the marking of *Abutilon Thompsoni*. Sunlight and heat bring out its beautiful markings. The last winter and spring my plants grown in close propagating houses were destitute of the beautiful markings characteristic of this species. This was particularly the case with two large stock plants, which became quite plain in color. When the weather was sufficiently warm, they were planted out in the full glare of the sun in a warm situation. Here they soon showed their lovely marking, and they were the admiration of all who saw them during summer and fall. Plants which do not show the markings which they ought to, want air, light, and bright sun. The fine new Golden Coleus show their glowing colors in great beauty under glass, *but close to the glass*, where the sun in all its fierceness can shine upon them. When planted out doors, the situation should be warm and sunny. We must not forget that these plants are natives of the tropics, and delight in heat and sunshine, whilst another class of very beautifully marked plants, which are natives of the temperate zone, — tricolor geraniums, — lose their beautiful marking in warm, sunny weather, under glass or out doors; and it is only when the pleasant and cooler weather of autumn comes round that they show their lovely marking, which they continue to do during winter and spring. This beautiful class are truly plants for green-house decoration during winter; for here and during this dull season they can be grown to great perfection, and are then superlatively beautiful. Yours, etc., *John Saul.*

WASHINGTON, D. C., NOV. 22, 1870.

THE PRESIDENT WILDER STRAWBERRY. — A few days before starting to California, Colonel Wilder very kindly presented us with a dozen plants of this variety. This is the first opportunity we have had of seeing the plants since we saw them a couple of years ago on his own ground. Notwithstanding the extraordinary hot and dry weather to which they have been subjected, their vigor and health are remarkable. To be sure, "we don't grow strawberries for their leaves;" but vigor and health of foliage under a trying ordeal we regard as a good augury of success. *Gardener's Monthly.*

NOTES FROM CALIFORNIA. — Our wet season has fairly set in, the blessed rain descending in gentle showers during part of this and last week, and the parched pastures begin to turn green with promise of abundant harvest. Still the Golden Russets cling to the branches, and choice Muscat and Malaga grapes are gathered daily in pristine freshness from under the gold and flame-tinted leaves. The fruit is not yet gathered before the pruning commences, and all the other operations of horticulture are in full blast. There is little time for relaxation except when the descending waters force us under the sheltering home roof, before a rousing fire.

There is a great future opening to the terraculturists of our common country, in the progressive development of the beet sugar, silk, and vine interests; those three industries will emancipate us from the bulk of our imports, and be the source of untold prosperity. The Alvarado "Sugarie" in California is a perfect success, delivers the product of excellent quality by the ton, and insures a rapid extension of sugar manufacture in California. Our higher-priced labor is fully balanced by the greater percentage of sugar and climatic facilities in working up the beets. The silk-worms have done remarkably well; sericulture is getting to be popular, and will rapidly expand with the growth of the mulberry. The quantity of wine made this season is a mere matter of conjecture, but should be nearly double that of last year; and the quality is undoubtedly superior. The best known European varieties of grapes doing remarkably well, native sorts are entirely neglected, with the exception of the Catawba and Isabella. But there is one native variety, which, on account of its rampant growth and abundant bearing qualities, should enlist the particular attention of Californians; it is the Scuppernong. From time to time I notice long discussions in horticultural journals, some decrying as worthless, others praising its wine qualities, which appear to be remarkably adapted to our climate. The vines planted between and trained up the mulberry trees, Italian fashion, would be a source of additional revenue and increase the beauties of the landscape.

Yours truly, *J. Strentzel.*

ALHAMBRA, Dec. 6, 1870.

GLADIOLUS IN BLOOM IN WINTER. — The California Horticulturist for January says, "A few days since we saw a scarlet gladiolus in full bloom on Jackson Street, near the top of the hill." This shows that we might have the gladiolus in bloom all through the year, if consecutive planting was resorted to. The bulbs are cheap, and two dozen planted at the rate of two per month would furnish us with flowers "all the year round."

"BISMARCK." — Since our correspondent "Bismarck" made his exit, we have had many inquiries from our readers for their old friend. We are happy to say that, in response to these inquiries, he has promised occasionally to favor us with his views on horticultural subjects, though necessarily in a briefer form than heretofore.

BUYING TREES. — There are two points which should be attended to by all tree buyers. First, if you want to get what you pay for, send your orders to an honest and skilful nurseryman, instead of buying of travelling agents. No doubt there are honest agents, but there are also dishonest ones, as many purchasers have found to their sorrow; and a man who is here to-day and there to-morrow is much more likely to defraud you than a nurseryman, who must of necessity have an established location, and must know that if his trees are not satisfactory you will know where to reach him. Second, send your orders *early*, so as to have them executed early, before the nurseryman is so crowded with work that everything is done in a hurry, and secure the earliest selection and fullest assortment, and get your trees so as not to be hurried in planting them.

PLANT FOOD. — Without a proper management of nitrogen, potash, and phosphoric acid, no farmer can be in a high degree successful. He grows no plant upon his farm which does not contain them; he sells no product, vegetable or animal, which does not carry them away. He has no soil rich enough to endure for any considerable length of time the draft made upon it for these substances by plants without losing its fertility. They must be supplied, or exhaustion follows. There are in 1000 pounds of wheat, 23; of oats, 22; of peas, 42; of potatoes, 15; and of red clover hay, 21 pounds of nitrogen, respectively. In 1000 pounds of wheat, there are 237; of corn, 250; of oats, 123; of potatoes, 515; and of clover, 161 pounds of potash, respectively. In 1000 pounds of wheat, there are 498; of corn, 501; of oats, 149; of potatoes, 113; and of clover, 63 pounds, respectively, of phosphoric acid. *Prof. Fernald.*

MAKING VINEGAR. — From a prize essay of the Indiana Horticultural Society, by W. H. Ragan, we take the following directions how to make pure cider vinegar. This can only be done by taking pure cider, putting it in a cask with an open bung, and setting it away in a dry, warm room, where it will not freeze, awaiting the result, which will come about in from one to three years. The formation of acetic acid, or the process of acetic fermentation, may be hastened by using casks that have been used for vinegar, or by adding sour cider to a cask already one third or one half full of vinegar. But to attempt anything further than this, in the way of hurrying matters, is always at the expense of quality.

ORANGE TREES IN FLORIDA. — The orange growers of Florida have again been unfortunate. The Rural Carolinian says, "The effects of the freeze which occurred just previous to Christmas are said to be quite disastrous in Florida, where the orange trees are badly injured. Our correspondent, Judge Edwards, of Micanopy, lost 25,000 oranges."

"LOOK ON THIS PICTURE, AND THEN ON THAT." — We take the two following paragraphs from the Horticulturist for January and February, respectively. If the editor of that journal is not generally more correct in his information than in the first of these paragraphs, it will take him a good while to establish a reputation for accuracy.

The Wilder Strawberry. — In the west the foreign variety is succeeding better than the native, the latter dying out, at least only a moderate grower, while the other is large, showy, of high quality, and very firm. It would certainly be a singular fact if Mr. Wilder was to be indebted to a foreign source for the most successful of the two varieties bearing his name.

The President Wilder Strawberry. — Editor Horticulturist: In your Editorial Notes for January, you speak of the native strawberry bearing the above name as only a moderate grower in the west, while the foreign variety of the same name is large, showy, of high quality, and very firm. I have no knowledge of the foreign kind; but my experience and observation with the native President Wilder are directly at variance with the above statement. I set a few plants in the fall of 1869, also a few more in the spring of 1870. They occupy three different positions in my garden — one in clay, one in sandy soil, and the other in black loam. I think I did not lose a plant of those set out; and although the past season has been one of unusual heat and drought, I must say I never grew any variety of strawberry which was more perfectly free from sun-burn or "dying out" than the President Wilder. Indeed, its habit of growth has been, so far, all I could desire. I had a few berries, the flavor of which was excellent, having a good deal of the character of La Constante. I noticed particularly the bright, lively color, fine size, and great firmness of the berries, and formed the opinion that they would bear carriage fully as well as Jucunda, or even Wilson. Should it prove, upon trial, to be sufficiently productive, I venture to predict for this variety great popularity and real value, worthy of the honored name it bears. I will add that I have taken some pains to inquire of my brother horticulturists of Ohio, both north and south, as to the performance of the President Wilder, and, with a single exception, their experience accorded perfectly with my own.

DELAWARE, OHIO. *George W. Campbell.*

NEW SEEDLING GRAPE. — We received from our correspondent, George W. Campbell, Delaware, Ohio, a specimen of a new seedling grape — a hybrid between Concord and Joslyn's St. Albans. Mr. Campbell thinks it the nearest approach to a fine foreign grape upon a hardy, healthy, native vine that he has yet produced. The grapes were picked on the 9th of September, when they had been some days ripe, and forwarded to us on the 20th, and consequently were not in the most perfect condition when they reached us, but, so far as could be judged, were of excellent quality. A leaf which accompanied them was perfectly fresh, and seemed to leave nothing to be desired for substance and hardiness. It is a white grape.

COTTON-SEED *vs.* LINT. — Professor Hilgard says that cotton-seed takes nine times as much nutriment from the soil as the lint.

THE "BIG TREE" OF CALIFORNIA. — We have been much interested, in common with many others who are unable to visit California, in examining a section of the *Sequoia gigantea*, now on exhibition in Boston. An excellent account of these trees may be found in the Journal for October, 1870, by Mr. Wilder and his party. Although the wood is very light when dry, this section, which is fifteen feet in diameter, and ten inches in thickness, weighs no less than four tons, being still full of the sap which was in it when cut down in 1853. The proprietor informed us that he had seen one of these trees *growing* four years after it was cut down. The section is quite smooth, having been made by cutting two grooves ten inches apart across the tree with a plane, each of which required seven days' work. The annual layers of wood may consequently be easily counted, which has been done by Professor Agassiz, who found 1210 of them. Near the heart of the tree they are about a tenth of an inch in thickness, but at the outside not more than one third as thick. The section was made at about thirty feet from the base. The total height of the tree was 302 feet, and it was estimated that it would have made 600,000 feet of inch boards. Four such trees would contain lumber enough to build an edifice as large as the late Boston Coliseum.

THE BEST PEAR. — What pomologist, when speaking of the many varieties of pears, has not been asked the puzzling question, "What is the best pear?" the innocent inquirer evidently expecting that he was going to receive in one word the results of years of toil and study; and the answer has generally been that the diversity of tastes, the different seasons, and the many excellent qualities found in pears made it quite impossible to say that any one variety was superior to all others. We have given this answer many times; but we hope we have grown wiser as we have grown older; and now there is one pear that seems to us to come nearer to perfection than any other. We think that when we get ready to answer the question, "What is the best pear?" we shall say, "Beurré d'Anjou."

NUT GRASS. — This is not a true grass, but belongs to the Cyperaceæ or Sedge family. Its botanic name is *Cyperus rotundus*, and it is also called Coco Grass. In the south it is a most pernicious weed, multiplying by nut-like tubers, which are extremely difficult to extirpate. Mr. George Kidd says, in the Practical Planter, that it can be effectually eradicated by summer fallowing. In November, let all valuable plants be removed from the space the grass has possession of, and the roots carefully washed and transplanted. Do not suffer a solitary plant to remain that will interfere with the fallow. As soon as convenient in spring, break up the ground deep, and once a week, all through the growing season, cultivate deep, so that the grass be never suffered to reach the surface. The tubers will thus be exhausted by their repeated attempts to grow. So long as the grass is kept from the influence of solar light, the tubers cannot recuperate, and consequently must perish; but if suffered to show above the surface for but a short time, the labor is lost.

The Bunch-of-grapes Fern. — This pretty native fern (*Botrychium ternatum*) is admirably adapted for growing in small Wardian cases. The name is derived from the appearance of its fructification, and the scientific name *Botrychium* has the same signification. When growing out doors, it takes a rich brown on the approach of cold weather. It is found in shaded grassy pastures and hill-sides; and those who can go into the fields and dig up this and other equally beautiful species need not trouble themselves about rare and costly foreign varieties. The variety *dissectum*, with beautifully fringed leaves, is the most beautiful. A remarkably fine specimen of this variety was exhibited by Mrs. W. S. Horner, of Georgetown, a short time ago, before the Massachusetts Horticultural Society. It is known also as *moonwort*.

The Pennsylvania Pear originated at Philadelphia some years ago, and from the name of the grower is known as Smith's Pennsylvania. It is of medium size, brownish russet, with red cheek, and often presents an exceedingly rich appearance. Not being of the highest quality, it has generally been superseded by better sorts; but at the annual meeting of the Illinois Horticultural Society, Mr. Taylor, of Burlington, Iowa, stated that he had found the Pennsylvania never blighted at all. If this proves to be generally the case, it will be well worthy of cultivation in the west. The tree is of very upright growth, like the Buffum.

Statistics of Fruit Growing in California. — We have received from the California Immigrant Union the statistical report of the Surveyor-General of California, from which we take the following items: The total number of apple trees is 2,180,273; peach trees, 767,666; pear trees, 334,680; plum trees, 199,044; cherry trees, 101,574; nectarine trees, 26,328; quince trees, 42,896; apricot trees, 76,116; fig trees, 45,665; lemon trees, 7,851; orange trees, 40,534; olive trees, 29,203; prune trees, 12,474; mulberry trees, 1,609,822; almond trees, 41,815; walnut trees, 39,438; gooseberry bushes, 207,844; raspberry bushes, 1,030,265; strawberry vines, 16,431,328; grape vines, 22,548,315; gallons of wine, 2,636,558; gallons of brandy, 161,015.

Pears for the South. — A correspondent of the Southern Planter and Farmer recommends for the tide-water region of North Carolina and Virginia the Hosenschenk, or Moore's Pound, Seckel, and Howell. The first of these is less subject to blight than the Bartlett. Being rather a slow grower, it is recommended to graft it into the limbs of strong-growing kinds. It is shipped two weeks before the Seckel or Bartlett, and is the most profitable pear of that region, from its size and handsome appearance always commanding a good price, when small pears barely pay the expense of shipment. The Seckel is described as making the best ornamental *shade* tree, except perhaps some of the Bigarreau cherries. The Howell succeeds either on pear or quince, bearing smooth, handsome fruit, regularly distributed over the tree, and is one of the best either for family or market.

REPORT OF THE PENNSYLVANIA FRUIT GROWERS' SOCIETY. — This pamphlet contains the proceedings for 1867, '68, '69, and '70. The address of President Hoopes at the meeting of 1870 is of great interest, comprising a sketch of the history of the society, remarks on sterility in fruits, on experiments with pollen, on the essential organs of plants, on fungi and their structure and uses, on fungoid diseases and their remedies, and on the fruits of California. At the same meeting, an address on pruning, with reference to fruit production, was delivered by William Saunders, who advised to prune closely when planting, and the next fall to cut back so as to establish a proper spread of branches, after which all pruning should be dispensed with, except to remove branches which crowded others. Mr. Meehan gave an address on fruit culture, and Mr. Jacob Stauffer a paper on pear trees. Mr. S. S. Rathvon read an essay on injurious insects, which is illustrated with two excellent lithographic plates. We are indebted to President Hoopes for a copy of this interesting book, and regret that we were unable to accept his kind invitation to attend the meeting the present year.

THE SOUTHERN ALMANAC, issued for subscribers to the Rural Carolinian, Charleston, S. C., contains a calendar of garden and plantation work for every month in the year. The gardener's work for March is to "Plant bush squash, pumpkins, water and musk melons, okra, Guinea squash, or egg-plant, sugar beets, carrots, beans, peas, radishes, lettuce, corn, celery (first crop), tanyah, and mangoes in the low ground, and elsewhere as soon as danger from frost is over. The vegetables in season there in March are ground artichoke, lettuce, spinach, asparagus, cabbage, carrots, parsnips, salsify."

THE REPORT OF THE DEPARTMENT OF AGRICULTURE FOR 1869 is received, and shows a continued improvement over former reports. Among the most interesting papers contained in it is the report of our correspondent, William Saunders, superintendent of the garden, in which he gives, besides other information, a classification of the varieties of grapes, with engravings showing the different species; a paper on apples for the Southern States, with engravings of many kinds; remarks on pear culture, on the cranberry interest, on tea culture in the United States; a paper on the progress of industrial education; and notices of the more prominent agricultural and horticultural books of the year, etc. Probably this is the most widely circulated agricultural work in the country, 225,000 copies being printed by order of Congress; and it is matter for congratulation that the department is now under the control of a commissioner who sends out a report worthy of circulation.

A BIG PEAR. — The largest pear we have ever seen is a specimen of the Uvedale's St. Germain, or Pound, known also as Belle Angevine, exhibited at the rooms of the Massachusetts Horticultural Society by Hon. Marshall P. Wilder. It was grown in the orchard of A. P. Smith, Esq., at Sacramento, Cal., and weighed four pounds and nine ounces, measuring twenty-one inches around the stem and eye, and eighteen inches transversely. It has been preserved in alcohol.

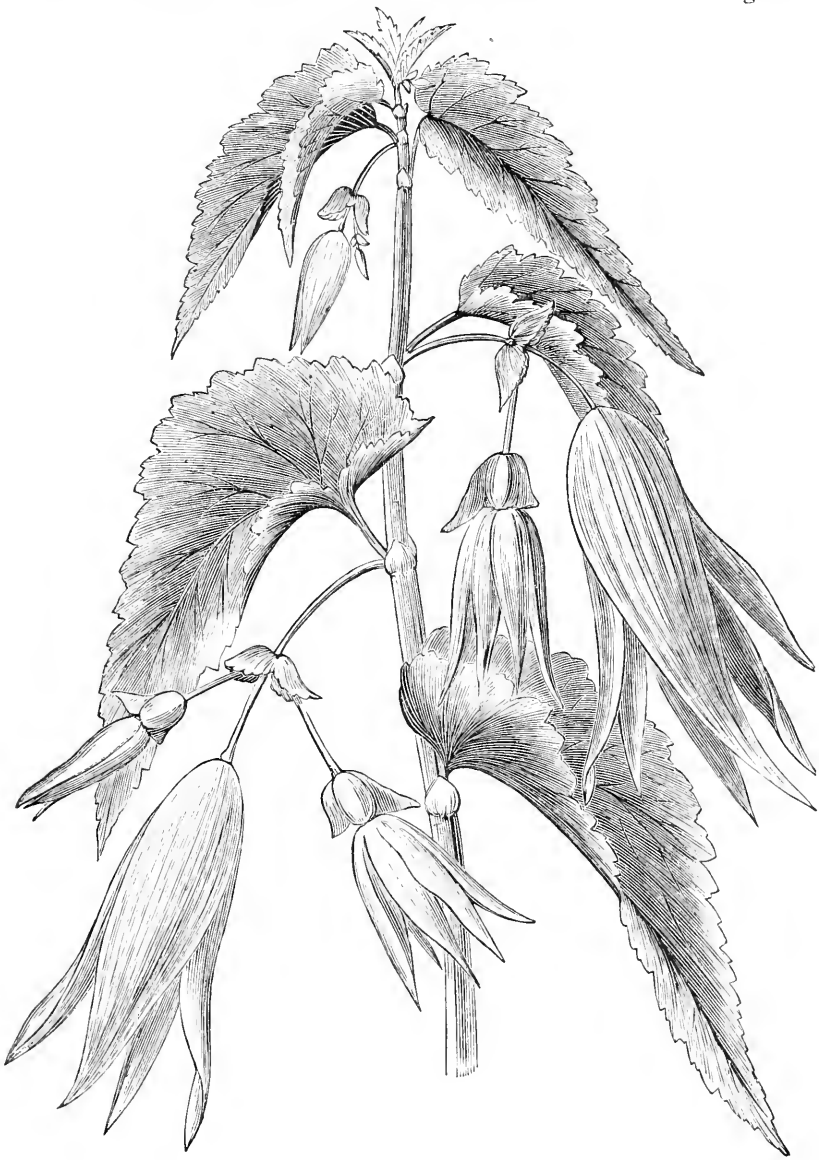
Meetings of Horticultural Societies. — Unlike the eastern societies, which rely for the advancement of horticulture mainly on exhibitions of fruit, flowers, and vegetables, our western friends seek to promote the cause chiefly by meetings held during the comparative leisure of winter, and extending over several days, at which reports of *ad interim* committees, who have during the growing season examined the grounds of the best cultivators, papers on various practical subjects, and discussions suggested by them, are in order. The time of these meetings is given mostly to fruit growing, though flowers and vegetables are not forgotten. We find, in our exchanges, reports, more or less full, of such meetings in Ohio, Indiana, Illinois, Iowa, Michigan, Wisconsin, Minnesota, Missouri, and Kansas. Some of these states comprise so great a diversity of soil and climate that one society is not sufficient; and so we have the Northern and Southern, or the Eastern or Western; and in Missouri Valley the grape growing interest is so extensive, that a separate society has been organized to promote it. We have sometimes attempted to give abstracts of the proceedings of these meetings, but at present our space will not permit, as we would like to; so we must be content with an occasional selection of a paragraph or two on some of the most important points.

We had the pleasure of attending the late meeting of the Illinois State Horticultural Society, and seeing how things are done under the presidency of our correspondent, W. C. Flagg. The meetings are held at different places from year to year, the last being at Galesburg, and more fully attended than any previous meeting, the citizens of the place being present in large numbers, especially at the evening sessions. Delegations were present from Missouri and Indiana, and the members were hospitably entertained by the people of Galesburg. The address of the president was full of practical suggestions, and interesting reports from the vice-presidents of the seven districts into which the state is divided gave information of the state of horticulture in each. The *ad interim* report on grapes was presented by D. B. Wier, and that on apples by the secretary, O. B. Galusha. Dr. Warder delivered a lecture on the variation and improvements in fruit trees, and their propagation, and the subject of forest tree planting, now attracting so much attention in the west, was fully attended to, Mr. Robert Douglass reading a paper on evergreens, and Arthur Bryant one on the most desirable deciduous trees for artificial planting. Our correspondent, Parker Earle, made a very interesting *ad interim* report on pears; J. W. Velie gave an essay on birds beneficial or injurious to horticulture; Dr. Hull presented the *ad interim* report on peaches and plums; and a paper on the effect of cultivation and settlement on fruit culture was read, which we prefer to have criticised by some one else than ourself. An essay by Dr. Spaulding on the influence of wine on the American people provoked a discussion which showed that the temperance people of Illinois were in earnest.

Arthur Bryant, of Princeton, whose acquaintance the readers of the Journal made in the last number, was elected president for the current year, and the next meeting was appointed at Jacksonville.

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

NEW FLOWERING BEGONIAS. — We condense from the Gardener's Magazine



BEGONIA BOLIVIENSIS.

descriptions of several new begonias. Previous to the introduction of these,

all begonias grown for the sake of their flowers required a stove; but now the possessor of a green-house or conservatory may grow at least half a dozen distinct sorts, and all better than the best of the older kinds. The new sorts, however, bloom at different seasons, and where proper means exist, a selection of both old and new should be grown.

B. boliviensis. — A most remarkable species, with flowers of a rich vermilion red color, which are most freely produced. It grows from two to three feet high, and a bushy specimen, when loaded with the brilliantly colored flowers, has a most striking appearance. It is tuberous rooted, and the stems die down in the autumn, when water must be withheld, and the pots laid on their side in a corner of the stove, in much the same way as gloxinias are treated.

B. Chilsoni. — A hybrid, much like the preceding, and probably descended from it, but better in every respect. The flowers are larger and of the deepest vermilion, being the most brilliant colored yet known.

B. diversifolia (syn. *Martiana*). — Of medium growth, and the large flowers, which are of a lively rose pink, are produced in the greatest profusion, and can be successfully grown in the green-house. It is tuberous rooted, and must, therefore, be dried off in the winter. Strong plants can be procured for a trifle, and as we have in this lovely species a possible addition to our list of hardy plants, a few specimens should be put out and allowed to remain all winter.

B. falcifolia. — A very beautiful species, growing eighteen inches high. It flowers in spring, in large, drooping panicles, of a pleasing shade of pink. Leaves regularly spotted, when young, with white.

B. geranoides. — A pretty dwarf-growing species, with pure white flowers on branching scapes, ten or twelve inches high. It does well in the green-house.

B. glandulifera. — Not as important as many others, but deserves mention for its peculiarly neat habit of growth, and bold scapes of pure white flowers.

B. Pearcei. — A distinct and handsome species, with large bright yellow flowers, leaves dark velvety green above, and red beneath, thus combining most beautiful flowers and handsome leafage in the same plant. It should be potted in lighter compost than the other species, and the pots filled quite half full of crocks. Indeed, the plants will grow with greater vigor in baskets suspended from the roof.

B. rosæflora. — Of all the species cultivated for their flowers, this is one of the most distinct and beautiful. The flowers are large in size, of a most lovely shade of bright rosy red, and produced most profusely through the summer. In every respect it is a most desirable acquisition, for it is neat in growth, showy in appearance, and succeeds perfectly in the temperature of an ordinary green-house. A native of the Andes, at an elevation of twelve thousand feet. It is deciduous, and must be kept dry at the roots during the winter.

B. Sedeni. — In many respects this bears a close resemblance to *B. boliviensis*, being tuberous rooted and upright in growth, but the leaves are larger, and the flowers rather different in shape, and of the richest possible shade of magenta. With ordinary management it will flower profusely through the season.

B. Sutherlandi. — In growth very graceful and elegant; stems and petioles of a bright red color; the flowers bright reddish orange, and produced very freely

through the summer. It is tuberous rooted, and requires a thorough season of rest.

B. Veitchi. — This magnificent species is a capital companion to *B. rosæflora*, which in habit of growth it closely resembles ; the flowers also are of the same form, but instead of rosy, they are of the most brilliant vermilion red. It succeeds well in the green-house, and there can be no doubt that it is quite hardy in the southern part of England, plants at Chelsea having grown entirely in the open air for two or three years past, without the slightest injury from frost. It is tuberous rooted and deciduous.

BEGONIA ROSÆFLORA.

B. Weltoniensis. — Though last on the list, this is by no means the least useful. In general character it resembles the pretty *B. parvifolia* ; but the flowers are larger, and of a pale pink or flesh color. By propagating at different periods it may be had in flower throughout the year. The plants require a warm green-house during the earlier stages of their growth, but those struck early in spring will flower profusely through the summer in the green-house or conservatory. For table decoration it is most valuable, because, owing to its fine habit, handsome specimens of medium size can be grown without the expenditure of much time in stopping and training.

With the exception of *B. Pearcei*, all the foregoing can be grown very successfully in a compost of two parts rather light turfy loam, one part fibrous peat, and one part of either leaf-mould or well-decayed hot-bed manure. When all these have been well incorporated, a sixth part of the whole bulk of silver sand should be added. The pots must be efficiently drained, and the plants should not be over-potted, as when they become pot-bound they can be assisted with weak liquid manure.

The upright growers can be propagated by cuttings of the young growth when it has become moderately firm, and the stemless species by taking off the young growth with a small heel when about half grown. In both cases the cutting pots should, if practicable, be partly plunged in a mild bottom heat, and water applied very sparingly, for if watered too freely the cuttings will, from their succulent character, soon perish. All the species, where nothing is said respecting the most suitable temperature, require the warmth of a stove, especially during the earlier stages of their growth.

An Imperishable Hot-house. — At the Oxford show of the Royal Horticultural Society, was exhibited a structure called the "Imperishable Hot-house;" and so far it is almost worthy of the title. The glass itself will not perish, and the glass is held in its place by small clips of brass or other material, which will likewise not perish. The house consists of a mere framework of rafters and mullions, placed from six to eight feet apart, and connected together by cross pieces of iron or wood, at such distances apart as may be required to take the glass, which is laid on in much the same way as tiles on the roof of a house, and held fast by the clips, as before stated. We have some objection to the lapping over of the glass at the sides; otherwise we consider this a decided move forward in horticultural structures. The outside being all glass, no painting whatever is required; and what a wonderful saving this must be!

English Journal of Horticulture.

Veitch's New Autumn Giant Cauliflower is praised by all the English journals as a most valuable acquisition. It is quite distinct, and valuable not only for its colossal proportions, but for its beautiful appearance on the table, and its excellent flavor. The heads remain perfectly solid, and of the purest white, until they attain the diameter of twelve inches. For exhibition and marketing it is pronounced A 1.

The Cost of War. — In that good time coming, when the arts of peace shall supersede the expensive brutalities of war, glass constructive genius and cultural skill will provide artificial climates on a scale of colossal magnitude, of which we have as yet hardly dreamed. The mere money that has been spent by France and Prussia in this war would have built a conservatory reaching from Paris to Berlin, and wide and lofty enough for the two emperors to have driven their equipages about in it for days and weeks together at pleasure, and to have enjoyed a week's rest in a crystal palace in the middle of it, when they met on either side of the Rhine. *Gardener's Chronicle.*

THE ADVANTAGES OF BOTTOM HEAT ON A LARGE SCALE. — The Bank Colliery, near Rotherham, caught fire a hundred years ago, and all efforts to extinguish it have been ineffectual. So intense is the heat arising from this fire, that people possessing gardens above the colliery declare that the growth of the plants is materially affected, and that they are enabled to obtain two and three crops every year. *English Journal of Horticulture.*

NEW VEGETABLES OF 1870. — The most important addition here is Laxton's William the First pea, an early hybrid, blue, wrinkled variety. There are also Laxon's Quality and Quantity, two very fine wrinkled sorts, with Maclean's Best of All, and Easte's Kentish Invicta. In broccoli we have the addition of Cooling's Matchless, a splendid late spring variety, and Veitch's Autumn Giant cauliflower, which furnishes a fine late autumn supply. In beets we have the New Red Egyptian, turnip-rooted; and we get an excellent parsley in Carter's Covent Garden Garnishing. In onions we have a fine addition in the New White Italian Tripoli, which has very large, very solid, pure white bulbs. In tomatoes there are Hopper's Giant and Trophy, two very large sorts, greatly resembling each other. Among kales we have Melville's Hybrid Imperial Scotch Greens, a hybrid perpetual, having excellent close hearts. Of cucumbers there are many; Heatherside Rival, a black-spined sort, being the best. We must also notice Temple's new Chinese cucumber "Sooly-qua," a huge thing, growing to the length of seven or eight feet, and twelve inches in circumference, said to be eaten when boiled by the Chinese, and as much relished as roast pig. In potatoes there are many claimants, but nothing calling for special notice.
Florist and Pomologist.

ROSE-COLORED HONEY. — The Gardener's Chronicle notices a specimen of honey tinted of a beautiful rose color, and vouches for its beauty and delicacy. The comb was virgin, the wax almost white, the honey limpid, pure, and of the color of pale red currant jelly; and whether exposed in the cut cells, or seen shining through the white semi-translucent wax, the effect was exceedingly pleasing. It was produced by feeding the bees with loaf sugar — two pounds to a pint of water — highly colored with cochineal, and scented with rose-water.

CHRYSANTHEMUM FRUTESCENS. — The French are specially fond of the *Chrysanthemum frutescens*, a large white-flowered green-house bush, which they call Anthémis. In the early summer it is seen everywhere — in windows, in halls, in flower-beds, on restaurant tables, and its similitude in almost every young lady's bonnet. If it were not effective, it would not be permitted to grace the latter situation. At the Paris exhibition, last spring, were some gigantic plants, from four to five feet across, and trained dome-fashion; they were very handsome and novel, a trifle too regular, perhaps, but that would be thought no defect by some. *Florist and Pomologist.*

SUGAR CANE. — The English Journal of Horticulture says that sugar cane is grown there as an ornamental plant, for which it is very useful and easily grown. Small plants, in 48-sized pots, look particularly graceful.

A FEW COMING STRAWBERRIES. — From amongst several hundred seedling strawberries which we have tasted and examined this season, the following are selected as those which have most struck our fancy, and seemed most promising. These four varieties may, indeed, be looked upon as real acquisitions, which we shall be glad to welcome when their owners see fit to introduce them.

Waltham Seedling. — A hybrid raised between Crimson Queen and Sir Charles Napier, and partaking, to a certain extent, of the characteristics of both parents, though in general outward appearance more nearly resembling Sir C. Napier, but sweeter and richer. The fruit is of about the same size, and produced in as great abundance; but the color is somewhat darker, approaching a deep red; the flesh firm, juicy, rich, and very pleasant. Habit of the plant robust and vigorous. Leaves dark green and sturdy. A most extraordinary cropper, and a decided improvement upon Sir C. Napier as to quality of fruit and vigor of plant. Raised by Mr. W. Paul, Waltham Cross, and selected out of several hundred seedlings, many of which possess points of great merit.

The Amateur. — The fruit of this is of large size, and very handsome appearance; the color of a deep, dark crimson; the shape roundish-obovate, and cockscombed; the flesh bright red, somewhat soft, but of very pleasant flavor. This extremely promising variety is a seedling raised by Mr. Bradley, the raiser of Dr. Hogg, Sir J. Paxton, and Oscar, whose name is thus an almost sufficient guarantee of its merits. Mr. Bradley states that it surpasses every other variety he has grown, both for size of berry and productiveness. It is very sturdy and robust in constitution, retaining the foliage well throughout the winter. The fruit commences to ripen about the same time as that of Sir J. Paxton, and the plant continues long in bearing. Recommended as being particularly suitable for amateurs who can cultivate only one variety.

Duke of Edinburgh. — This is a hybrid between Keens's Seedling and Elton Pine. The fruit is very large, cone-shaped, and irregularly cockscombed; the color deep-dark crimson; the flesh dark, moderately firm, yet juicy and pleasant, but not particularly rich in flavor. Its large size and fine color give it a noble appearance, which will make it a great favorite for market purposes. It comes into use the same time as Keens's Seedling, but keeps up a much better succession, affording fruit in a good state for four weeks. The habit of the plant is robust, and it is a most extraordinary cropper. Raised by Messrs. Moffat, fruit growers near Edinburgh. Received a certificate from the Royal Caledonian Horticultural Society.

Royalty. — This is from a cross between Black Prince and British Queen, both of which it considerably resembles in outward appearance. The fruit is of medium size, ovate in form, with a well-defined neck; the color bright shining red; the flesh pale red, solid, rich, and very pleasantly flavored. In general appearance, this most nearly resembles Myatt's Eliza, although quite distinct from that variety. The plant is of vigorous growth, and an abundant bearer. Raised by Mr. Trotman, Isleworth. Received a first-class certificate from the Fruit Committee of the Royal Horticultural Society.

A. F. Barron, in Florist and Pomologist.

THE Editors of "Tilton's Journal of Horticulture" cordially invite all interested in the various branches of horticulture to send questions upon any subject on which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to inquiries in regard to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to horticulturists.

We would especially invite our friends to communicate any little items of experience for our "Notes and Gleanings," and also the results of experiments. Such items are always readable, and of general interest.

We must, however, request that no one will write to the contributors to our columns upon subjects communicated to the Magazine.

Anonymous communications cannot be noticed: we require the name and address of our correspondents as pledges of good faith.

Rejected communications will be returned when accompanied by the requisite number of stamps.

A. H., New Britain, Conn. — Your flower is undoubtedly an Amaryllis; but there are so many species, with flowers so much alike, that it is difficult to determine by an imperfect specimen to what species any one belongs. Yours is probably *A. Johnsoni*, in which the flower-stem is about sixteen inches high, and much striated with dark purple, and very glaucous; leaves dark, luxuriant, and a good deal variegated, especially towards the points; spathe brown, number of flowers varying from four to eight. The striped markings of the stem and leaves are pretty constant characteristics of the true *Johnsoni*.

Dr. H., Goshen, Ind. — There is a Botanic Garden connected with Harvard University, Cambridge, Mass. It is under the charge of the Professor of Botany, Asa Gray. We believe that a part of Mr. Shaw's famous garden at St. Louis, Mo., is laid out as a botanic garden.

S. B., Chicago, Ill. — The horse-chestnut with pendent flowers, noticed by Mr. Wilder and his party, and described in our last volume, is supposed to be a new species.

C. H. C., Newton Centre, Mass. 1st. We do not know of any apple or pear trees trained as horizontal cordons in this country, except at Ellwanger & Barry's nursery, Rochester, N. Y. They are budded on the French Paradise stock. Any kinds may be budded on it, but you will find a good selection of kinds in the article on "Garden Apples," in our January number. Large apples are eligible for this method of training, as there is no danger of their blowing off.

2d. We have seen various notices of the cultivation of the opium poppy in the United States, but have not made note of them, and cannot now refer you to any. Indeed, we do not feel very favorably disposed towards the cultivation of this plant, as there is a good deal too much opium eaten already.

3d. An experienced florist, who has made an improvement in the apparatus for fumigating green-houses, will give an account of it in our next number.

Oxy. — The reason that cranberries are planted in low grounds is not because they will not grow on upland, but that they do better on the low ground where they are naturally found, and by flowing them with water they can be protected from frost and insects.

Mr. Tilton.

I have taken your Journal from the beginning, and would not be without it for ten times the cost. The illustrations of what is new in any number are worth a year's subscription. I find some trouble in getting seeds and plants as early as I could wish. Why can't some of your numerous advertisers take a hint, and advertise these new things? If any one who has stock should advertise in the numbers succeeding your descriptions, he would find it paying. *M. O. F.*

B. T. C. — The best thing you can do with your old strawberry bed, which is so matted together and difficult to weed, is to dig it in and plant a new one. If you have plenty of ground, make it in a fresh place, and keep the old one for the little fruit it may give, and dig in as soon as gathered. If you make the new bed on the same place as the old one, give it a liberal dressing of manure, and trench deeply, so as to bring up some fresh soil.

T. R. — The insect which has eaten out the pith of your currant bushes is the currant borer. The only way to destroy it is to cut off the shoots containing them, — which can be known by their collapsing when pinched between the fingers, — and burn them.

APRIL.

TIMBER PLANTING ON THE PRAIRIES AND ELSEWHERE.

By Dr. John A. Warder, President Ohio Horticultural Society.

So much has been said and written in the past years, and so well said and so well written, upon the necessities, the charms, and the profits of timber planting, that it might seem a work of supererogation to add another word, to write another line, upon this subject.

But a recent trip to one of the prairie states has forcibly brought to mind, both the necessity which so generally prevails over the country, and the charms, the comfort, the delight, and the advantages which are realized by those who have planted freely. Hence it may be well to refer again to the necessity of the many, and also to the comforts of the few, which have followed as the results of the judicious planting of trees about their homes.

For long stretches across the State of Illinois, even in the lines of the older railways, the traveller is wearied by the expanse of level tracts devoted to agricultural products, with vast fields appropriated to the noble cereals of our fertile land, or to the nutritious grasses for pasturing numerous herds and flocks. The occupants of the soil appear to be too grasping for their own good; some are, perhaps, too parsimonious of their means to appropriate a fraction of their lands to the production of timber, or even to the occupation of a small part of the soil by

shelter belts and groves for the protection of their crops, their cattle, and themselves from the fierce blasts of winter, or from the burning heats of summer.

Others, more wise, more liberal, and more enlightened, have already begun to make provision for the future needs of the country, and for their own immediate comfort, by setting out timber lots, belts, and groves; some extensive plantations have also been set out with different kinds of trees. Some of these have already begun to assume such proportions as to demand attention, and it is proposed, upon the present occasion, to give a little account of one of these efforts at transforming the prairie into a timber lot.

Mr. D. C. Schofield, near Elgin, has become somewhat famous among the horticulturists of Northern Illinois, for his enthusiastic efforts in this branch of rural art, and especially for his admiration of the European Larch tree, of which he has some fine plantations, though he has not confined himself to this species. His pines and spruces are also very thrifty, and they are especially attractive in winter, when their living green, of different tints, is a very striking feature of the prairie landscape.

The European Larches are from ten to twelve years old; are very regular, tall, even, and straight; they are flanked with Norway Spruce in the timber belts; these last make a wall of green; though not so tall as the larches, they are nearly as large at the stem. The Silver Pines are very vigorous, and have made a large growth in the prairie soil; the Scotch and the Austrian Pines present their usual sturdy appearance, and are very promising as timber trees; but none of these will make so quick a return to the planter as the larch. Mr. Schofield exhibited a log from his plantation that was a foot in diameter, and which showed, in its section, the wonderful growth of the rings that continue to carry their size, or even to increase it as the trees grow older. The small proportion of sap wood is also remarkable, even in young trees, and this may explain the durable nature of the timber, which is proverbial, and which has been thoroughly tested in Europe. From all that appears, the prairie growth bids fair to maintain this character, and the rapidly growing larch is largely planted for future supplies of hop-poles, fencing material, and cross-ties, for all which purposes it is admirably adapted.

Mr. Schofield has also experimented with other trees, such as soft maples, white ash, elms, black walnuts, etc. None of these compare with the larch in size or thrift, and the black walnut is not by any means promising as a timber tree for the prairie, except in favorable

localities; the growth does not compare in size; but more than this, the tree, even in its native haunts, requires from one to two centuries to bring it to perfection for lumber. In planting for profit, we require something that will yield a more speedy return for our outlay.

Samuel Edwards began planting a great variety of useful and ornamental trees in Northern Illinois some twenty-five years ago, and whoever will visit "The Evergreens" now, cannot fail to realize the delights and the comfort produced by these plantations on the open prairie; nor can any one question the claim that is made for them as being a profitable farm crop.

Mr. Edwards has planted belts and groups, as well as masses of timber. Of all his trees, the various pines, the spruces, and the larches are the most promising, and have already proved the most satisfactory.

A few days since an opportunity was offered for measuring some fine trees planted at Springfield, Ohio, in 1851; most of these are on hard clay land, and have been struggling with blue-grass sod, without any cultivation. The figures are given for comparison, and are the diameter at one foot above the ground.

European Larch,	10⅓ inches.	Norway Spruce,	14 inches.
Paper Birch,	10⅓ "	Austrian Pine,	15 "
Red Cedar,	9⅓ "	Ailanthus,	15 "
White Elm,	14⅓ "	Burr Oak,	15 "
White Pine,	14⅛ "	Silver Poplar,	17⅛ "

Others in cultivated ground.

White or Paper Birch,	14 inches.	European Larch,	18 "
Silver Pine,	14⅓ "	Deciduous Cypress,	20 "

This larch was high enough, and of sufficient size, to make two good cross ties. Another larch, in the streets of Columbus, Ohio, planted about sixteen years ago, has a diameter of more than 12⅔ inches.

These measurements show us that some kinds of timber trees will grow so rapidly as to make a quick return to the farmer, and to yield a paying crop, as has been demonstrated already in Illinois.

The early planters experienced some difficulty in procuring their plants: all were then imported from Europe, which involved expense, delay, and risk, especially with the larch, that needs to be planted very early. All this is now obviated. The great demand for seedling forest trees has been answered by the enterprise of our nurserymen, and a single firm on the shores of Lake Michigan is now offering millions of plants. Nor is it merely a flash advertisement, but a reality, as we

can testify, who have seen the tons of seed, the acres of seed-beds, the many acres of transplanted trees, and the immense store-cellars where the salable plants are wintered, so as to be ready for shipment at any moment. To realize this, visit Robert Douglass & Son, Waukegan, Illinois.

HEATING GREEN-HOUSES.

By W. D. Philbrick, Newton Centre, Mass.

A useful article, under the above heading, appeared in the January number, from Mr. W. C. Strong. While I do not by any means desire an unprofitable controversy with a good friend, still less to set up my opinion against that of an older and much more experienced gardener, there are still some further considerations connected with this subject which deserve notice.

There is, no doubt, much loss from the hot gas of the coal passing out of the chimney where there is no radiating flue connected with the boiler, or when no boiler is used, from want of length enough in the flue to radiate or conduct all the heat from the coal gases. To overcome this, I have connected with my Hitchings boiler a horizontal flue fifty feet long, in addition to the ordinary direct flue rising perpendicularly from the boiler. The gases escaping through the direct flue are quite hot, and this is only used to blow the fire or kindle anew; but when the horizontal flue is used, the gases escape at a temperature seldom more than twenty degrees higher than that of the house, and I think this difference is needed to secure a good draught.

In fact, the importance of good draught is so great, that I would not dispense with the direct flue on any account; and I think the saving of fuel by the use of a long horizontal flue is more apparent than real when the draught is sacrificed. For while we undoubtedly save the heat which would be otherwise carried off by the burned gases, we are, perhaps, not aware that these very gases are often capable of producing more heat if properly burned in a hot fire with good draught. Coal burned at a dull, cherry-red heat, and especially when in large mass, with imperfect draught, is converted by the combustion into a gas, called carbonic oxide, which passes off up chimney unburned; now, if we could burn this gas, we should (theoretically) gain exactly as much more heat as the slowly burned coal yielded in producing it. It is this gas burning which makes the blue flame to be seen over an open fire of

anthracite; and that it often passes off unburned, in most ordinary furnaces, is proved by the fact, that when we open the fire door, we are often greeted with a sudden flash of gas, which takes fire the moment it gets air enough to burn it: whenever this happens, we shall find our account in boring a few small holes through the fire door to admit air enough above the fire to burn the gas. The loss suffered from the neglect of this simple precaution is estimated, by good authorities, at from one quarter to one half of the whole coal burned.

There is another objection to copper boilers besides the one mentioned by Mr. Strong, viz.: that the copper burns out rapidly in contact with a coal fire, as is experienced by every housekeeper who uses a copper wash kettle over a coal stove.

The statement that hot-beds "will in the future be more and more strictly confined to small efforts and special purposes," would, perhaps, provoke a smile from the great market gardeners of Arlington, who are still, many of the best of them, very confident that the hot-bed is the cheapest and best means likely to be invented for forcing vegetables. Their opinion may be due in great measure to the proverbial attachment of farmers to old and time-honored ways of doing things; still there are young, enterprising, wide-awake fellows, who have been brought up at gardening, and who have used both green-houses and hot-beds, who think that for all winter work the green-house is best, but for the spring months, the hot-bed will always be used, and found most economical, at least, for the forcing of vegetables.

GRAPE CULTURE AND WINE MAKING IN CALIFORNIA.

By M. M. Estee, San Francisco.

I was surprised to see in the February number of the Journal, under the subject of "California Grapes and Wine," the statement that "grape culture is only profitable to those who can make their crop into wine, and *this requires a capital of at least thirty thousand dollars.*"

On this subject, permit me to say you have been entirely misinformed. First, in California, thus far, those who have raised table grapes only, have made quite as much money as those who have made wine. Second, all small producers can sell their wine grapes at from one to one and a quarter cents per pound, taken at their vineyards, the large manu-

facturers of wine or brandy being the purchasers; and even at this price, grapes are the most profitable crop raised in this state. Third, it does not require thirty thousand dollars, or even three thousand dollars capital, to manufacture wine. Any producer can make wine on a small scale, if he so desires; no expensive machinery is necessary to make wine, nor is a large or expensive wine cellar necessary. For that matter, there is no necessity for any wine cellar in this climate. Of course, all large manufacturers have equally large wine cellars or wine *warehouses*.

It must be remembered, that in this equable climate it is yet a grave question whether a cellar, so called, is of any advantage to the wine. Again, it is safe to say that three fourths of all the vines in this state are owned and cultivated by men of small means, and whose vineyards vary in size from five to fifty acres. A fifty-acre vineyard is, however, a large vineyard here or in any country. It requires no peculiar knowledge to cultivate the grape *here*. Any good farmer can make a good vineyardist; nor are grapes difficult to raise in the country — they will grow anywhere. On an average, the grape vines in this state do not receive as much attention, save in pruning season, as does your corn in the New England or Middle States, and the profit, even to sell the grapes at one cent per pound, is six times greater. I might add, that any New England farmer, if he will bring with him habits of industry, can in five years make as good a vineyardist as we have. In the immediate vicinity of my own vineyard, which is near Napa, nearly every farmer cultivates a vineyard. Of course some do so with greater success than others, but all have fair success; though I confess the experience of some is limited. In conclusion, permit me to add, —

1. The best vine lands are the cheapest lands in the state, because they are too stony or hilly for small grains.

2. No stakes or trellises are used here; the vines are planted by inserting cuttings in rows, six and seven feet apart, and are then cultivated as corn is cultivated, and no more.

3. The older the vines the more valuable they become, and the cultivation of the vine pays, whether limited to one acre, or extended to one hundred acres.

February 8, 1871.

TRANSPLANTATION OF THE GRAPE.

By Charles W. Ridgely, Baltimore, Md.

History, it is said, repeats itself. Nature, it is certain, does so with far greater precision. And as I have one or two hints to introduce on that exhaustless theme, the cultivation of the vine, I do not know that I can illustrate the philosophy of the subject more effectually than by narrating my own experience.

Some years ago, on removing to the country, I found a very unsatisfactory condition existing along the lines of a grape border of the achievements of which great expectations had been cherished. There was nothing but wood — and little of that. The leaves fell off in August, and what fruit there was perished while immature. The next year witnessed but small improvement. Two facts, it was demonstrated, produce an inevitable result. If grape vines stand in the shade, in a stiff, poor soil, they will produce no fruit worthy of being gathered. What then? Either remove them, and replant under more favorable circumstances, or cast them away as worthless. The decision was, *first*, to remove and replant, and *afterwards*, if need be, to cast away.

In March, 1869, then, I dug up, very carefully, and with a great mass of roots, large and small, these vines that had been standing in the ground five years, and replanted them in an open, sunny spot, and in a soil specially adapted to their wants. And as this is the point of the article, I will state how the border was prepared.

The earth, covering a space about eighty feet long and four wide, was removed to the depth of two feet, and a row of tiles and collars laid at the bottom, to secure proper drainage. After covering the tiles, for their protection, with several inches of the stiff, clayey subsoil, I had old field sods thrown in and trodden down, to the thickness of about a foot, and the trench then filled up with the surface earth. There was a good deal of old, well-rotted manure in the soil, a little more was added to prevent baking, and some of the clayey subsoil was added, and all thoroughly incorporated. In planting the vines, a large hole was made, and nearly ten times as large a quantity of roots was planted as can be procured with the best vines usually grown for sale. In addition, I coiled away in the hole some three to eight feet of cane, that *all* might take root, and help on the growth. Nor was this all. With a broom-handle I had holes made in the new soil, in three rows, at intervals of

eighteen inches, all along the border, to the depth of twelve inches, and filled up nearly to the surface with bone dust. And then, with a plain trellis, five or six feet high, and wires attached to support the young canes when they came, and with the vines eight feet apart, I said, on reviewing the work, that if these grapes did not grow, I would — be disappointed! But no disappointment followed.

The first season two canes were grown upon each vine, varying from four to ten feet in length, and of proportionate thickness. In November, these were cut back to from one to three feet, according to size and condition, and in April they were attached to the trellis as permanent arms. As the season advanced, the buds opened, and new canes grew with great rapidity, developing a full supply of fruit. I had the prudence to rub off nearly all the bunches on the spot, caring more for a large and healthful yield of grapes in 1871 than for a premature crop the present year, to be succeeded by a long period of exhaustion and barrenness.

Not to linger over the details, as I now write the vines are the admiration of beholders. In this their second season in the new home, many of them are extending nearly over their allotted space, sending up stout, vigorous canes, six to eight feet long, above the topmost wire, and having four or five of these canes on each arm. Next year it is reasonable to expect that each vine will fully occupy its eight feet of trellis, and yield an average of between fifteen and twenty-five bunches of fruit.

If, as the conclusion of the whole matter, I can aid in establishing the conviction in the minds of grape culturists, that the measure of their ultimate success is established in advance by themselves, and is regulated altogether by the degree of attention they bestow in the selection of the locality, preparation of the soil, and adaptation of the general treatment to the nature and requirements of the grape, this article will not have been written in vain.

LILIUM TENUIFOLIUM.

By Francis Parkman, Jamaica Plain, Mass.

A native of Siberia, and one of the smallest as well as one of the prettiest of the lily family. The bulbs are no larger than a walnut, and, indeed, are rarely so large. The stem is about a foot high, thickly

clothed with long and very narrow leaves, which give to the species its name of *tenuifolium*, or *slender-leaved*. At the top of the stem are borne the bright orange-scarlet flowers, from one to three or four in number. The color is remarkably vivid, and the whole plant is

LILIUM TENUIFOLIUM.

singularly graceful and attractive. It is very hardy, and grows best in a light, peaty soil, not too dry. It is rare, being difficult to propagate, except from seed.

NUT BUSHES.

In an article in our last volume on nut *trees*, we intimated that we might hereafter have something to say on the nuts which are produced on bushes, and we propose now to notice the hazel nut, filbert, and chincapin.

The hazel nut takes its name from the Saxon *hæsel*, a cap, the involucrum, or husk, covering it like a cap; and the botanic name, *Corylus*, has the same signification, being from the Greek, *corys*, a helmet. The specific name, *avellana*, of the European species, is from Avellano, a city in Naples, where the filbert is largely cultivated.

The filberts of Europe are but improved varieties of the hazel. When raised from seed they run into varieties, and hence are propagated either by layers or suckers, the former making more dwarfish trees. Seedling plants are longer coming into bearing. The improved varieties, which are less hardy than the original, have generally proved rather tender in the climate of Boston. Mr. Levi Jenney, Jr., of Fairhaven, Mass., has, however, for several years successfully grown a variety, which he calls the "Sicilian nut." The fruit is oblong shaped, and about an inch in length, and from specimens sent us by Mr. Jenney, we can attest its excellent quality. This variety is supposed to be identical with the Barcelona nut of the books, which strongly resembles the white filbert of the English, one of the best varieties.

These nuts were formerly divided into "short bearded" and "long or full bearded," according to the size of the husk, and from the latter the word "filbert" appears to have been derived, and a term of analogous signification, "langbartsnuss," is found among the German synonymes. Large quantities of filberts are raised in the county of Kent, in England, where the cultivation is made a "specialty," and elaborate systems of pruning and training are adopted. Its habit of growth is that of a bush full of suckers like the currant, but larger.

We would advise a further trial of the best European filberts, at least in latitudes south of Boston. In planting them, where their hardiness is doubtful, wet soil, in which they would grow late, should be avoided, as the unripe wood will in such situations be likely to be winter-killed.

We know no reason why varieties as good as the best European filberts, which, as we have before remarked, are but improved varieties of the hazel nut, should not be produced from our American hazel nut. We formerly had a bush, which we raised from seed of this species, and which produced a good crop of nuts of excellent quality, though of small size.

At any rate, both the hazel and filbert are worth cultivating for their beauty, even though they never produced a nut. The male flowers, which are disposed in catkins, bloom early in spring, and, when waving gracefully in the wind, give the bush a very attractive appearance. The fertile flowers, though inconspicuous, consisting only of a little cluster of scarlet pistils, possess a beauty worth searching for by all lovers of nature; and when the nuts are grown, we know of nothing prettier than the variously cut involucrum in which they are enclosed.

The chincapin, or dwarf chestnut, is even less known here than the filbert; but we remember, in our youth, a plant in the garden with its husks opening and showing its pretty, glossy nuts, of which only one is borne in a husk. It produces nuts when only five or six feet high. The foliage and flowers, though smaller than those of the chestnut, are yet so beautiful, that the tree is worth planting for these alone; and, as well as the hazel nut, is probably susceptible of improvement by selection of seed from the best varieties. We hope that if none of the eastern cultivators are disposed to attempt it, our western friends, who are now so enthusiastic in regard to forest tree planting, will take the matter in hand, and we have no doubt of their producing most valuable results.

We do not suppose that in these few notes we have told our readers much that is new; indeed, we do not think there is a great deal known on the subject; and if any one can add anything to what we have said, we shall be glad to hear from him.

PRUNING.

By George Jaques, Worcester, Mass.

The importance of the assertion may justify the repetition here, that an immense amount of pruning is done in this country every year, at improper seasons, without definite purpose, and in such a bungling manner, as to result in a positive injury, rather than a benefit to the subjects operated upon.

Were they properly attended to, from and after their first year's growth, trees and shrubs would rarely need any cutting that a common pocket-knife is not strong enough to perform. It arises almost altogether from long-continued neglect that the greater part of the work in question belongs, and seems likely to continue to belong, to what may be styled the system of *heavy pruning*, in contradistinction from those lighter and neater styles of operating which the science of arboriculture

teaches us, as being all that is really necessary where the cultivation has not been marked by slovenly mismanagement.

For this *light pruning*, there is no season of the year more favorable than the five or six weeks preceding the middle of July. During this period of fifteen or twenty days on each side of the summer solstice, the sap flows sluggishly, and is too thick to exude from wounds, however made, so that the healing process goes rapidly forward. Where deciduous trees have for a long time had their own way, there is, all things considered, no better period in which to remove their superfluous wood than the six weeks preceding the middle of December. This *heavy* pruning, however, may be continued throughout the winter, during mild weather, but always very cautiously when the wood is frozen, and especially towards the spring, when symptoms of bleeding begin to appear. Unquestionably, for either light or heavy operations with saw or knife, the twelve or fourteen weeks preceding the middle of May should be, as much as possible, avoided. During a few weeks, especially just before their leaves begin to expand, the sap of nearly all our trees is so thin and watery that it flows out or bleeds whenever there is even the slightest wound through the bark, and where this occurs, the healing is slow and imperfect at best. One exception, it is true, must be made in favor of trees that are transplanted in the spring. In this case, heading-in or thinning-out of the branches, more especially of deciduous kinds, is necessary, in order that the roots, enfeebled and mutilated by the operation of *lifting*, — as the gardeners call it, — may not be over-taxed before recovering sufficient strength to sustain the growth above ground.

If pruners, however, would only abstain from using a saw or knife upon all other subjects during the four months preceding June first, the *manner* of pruning would be very much more important than the time. The limits of this communication, however, do not admit of any explanation of the various processes of pruning, or of the results that may be produced thereby.

Wherever wounds, exceeding about half an inch in diameter, have been made by any operations in arboriculture, there should be an application of some protection from the air, until the exposed wood is overgrown by a new covering of bark. Shellac, dissolved in alcohol, grafting wax, coal tar, or common paint, are all serviceable; the latter being the most convenient, the neatest, and least offensive to the eye, because it can be easily made of the color of the bark; and this, for appearance at least, is worth something to people of taste. Although there are cultivators who doubt the utility of any such coating for tree

wounds, nevertheless it does not seem easy to explain why paint, for example, will not protect a raw place on a tree just as efficaciously as it does the sides of a wooden building. That such protection is actually afforded, is in accordance with several carefully conducted experiments that can be well attested. The wounds of resinous trees, it is true, are to a great extent protected by their own gummy exudations; but some of the slow growers, of the deciduous class, such as hickories, oaks, etc., decay very rapidly wherever their wood is exposed to the action of the weather. Protection in these cases has been found by experience to be of great value. Of the coverings above recommended, shellac often cracks off, wax melts, or dries and separates from the wound, coal tar is nasty, and often not conveniently obtainable; but common house paint fulfils every requisite, and, however hurriedly splashed on, it causes no injury. Of all the applications for tree wounds that have been tried as yet, this last named is unquestionably the best. The idea that positive healing influences can be imparted by any external application whatever, is too puerile to receive serious attention. The covering of wounds, etc., is for *protection*, and nothing more.

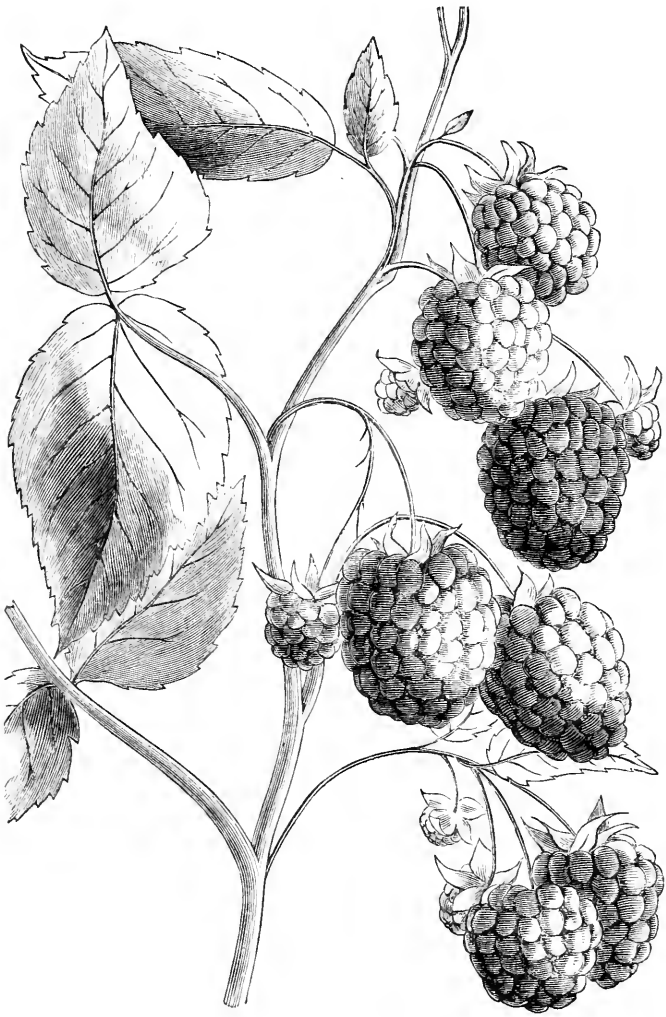
KNEVETT'S GIANT RASPBERRY.

We give an illustration of this excellent raspberry, of which we have before remarked that if we could plant but a single variety of the raspberry for our own use, it would be this kind. It is also one of the best for market in Boston. Though not, like the Black Caps, so hardy as to endure the winter without protection, it is yet, to our taste, so superior that we would willingly take the trouble to cover it. It is quite as hardy as any of the European varieties, and in the climate of Boston will give good crops one year out of two when entirely unprotected.

The canes are vigorous, tinged with purple, and covered with a thin bloom; prickles few, and of pale color; leaf somewhat rough, of dull, dark green; fruit deep red, large, roundish conical, sometimes double, approaching cockscomb shape; grains large; adheres slightly to the core, but still may be easily gathered, and does not crumble; flesh pretty firm; flavor sweet and rich.

It was introduced some years since by Hon. M. P. Wilder, who received some plants as a present from Messrs. Chandler & Co., of

Vauxhall, England, who, when more were ordered, stated that the plants sent Mr. Wilder were the only ones they had ever had, and that



KNEVETT'S GIANT RASPBERRY.

they knew nothing of their origin, but believed they were brought in by some person in the vicinity.

"WHAT SHALL I PLANT?"

By Francis Parkman, Jamaica Plain, Mass.

The season for making this inquiry is fast approaching, and we will try to provide an answer in advance. As for the standard "bedding plants," verbenas, fuchsias, heliotropes, geraniums, and the rest, most people know what they want; and, as for annuals, we refer them to the descriptive catalogues of the leading seedsmen, several of which contain a great amount of solid and trustworthy information, though, at the same time, we would venture a friendly caution against "novelties," which, very often, have little but their novelty to recommend them.

What we propose here is to give a list of the twelve hardy shrubs, the twelve hardy roses, and the twelve hardy herbaceous plants, which we think most desirable for general cultivation, as regards beauty, robustness of constitution, and permanency.

Shrubs.

1. *Almond.* — The double dwarf flowering pink species, and also the double white. The latter is often sold as *Prunus sinensis flore pleno*, or Double Chinese Plum.

2. *Azalea.* — The hardy, or Ghent varieties. Splendid shrubs, with yellow, orange, red, and white flowers. For ourselves, we prefer the deep orange sorts. Easy of cultivation, and not absolutely requiring a peaty soil, though they thrive better in it.

3. *Chionanthus.* — The "Virginia Fringe Tree."

4. *Cratægus.* — Hawthorns; white, red, and pink; double and single.

5. *Cydonia.* — The "*Pyrus japonica;*" red, pink, and flesh color.

6. *Deutzia.* — The best are *D. gracilis* and *D. crenata fl. pl.*

7. *Lonicera.* — "Tartarian Honeysuckle." The best is *L. speciosa*, also called *L. grandiflora* and *L. pulverulenta.*

8. *Philadelphus.* — The "Syringa." Gordon's is perhaps the best.

9. *Ribes.* — The "Flowering Currant." Beaton's is the best for our climate, being perfectly hardy.

10. *Spiræa.* — *S. Reevesii* is the best. There is a double variety of it, not so hardy as the single.

11. *Viburnum.* — *V. opulus sterilis*, the "Snowball Tree," is perhaps the best, excepting the comparatively rare *V. plicatum.*

12. *Weigelia.* — The best are *W. Desboisii*, deep red, and *W. Isoline*,

white. The new *W. hortensis nivea* is also very desirable. It is of a pure, unchanging white.

Roses.

We will name twelve of the best and hardiest perpetuals, including both older and newer sorts. Some of the former are much better than most of the novelties.

1. La Reine; deep rose; old and invaluable.
2. Baronne Prévost; light rose; old, but unequalled in its way.
3. Caroline de Sansal; flesh color; old and excellent.
4. General Jacqueminot; deep crimson.
5. Madame Plantier; white; a Hybrid China rose, to which we give a place on account of its color, its abundant bloom, and its excellent constitution.
6. Maurice Bernardin; deep purplish crimson.
7. John Hopper; rosy lilac.
8. Mademoiselle Annie Wood; crimson.
9. Mademoiselle Marie Rady; crimson.
10. Victor Verdier; light rosy crimson.
11. Princess Mary of Cambridge; bright crimson.
12. Madame Clemence Joigneaux; bright rose.

Herbaceous Plants.

These are so numerous that a selection is difficult. The following will be found excellent, and, being true perennials, and perfectly hardy, will last indefinitely: —

1. Variegated Monkshood (*Aconitum versicolor*).
2. White Fraxinella.
3. White Day Lily (*Funkia subcordata*).
4. Spiræa japonica.
5. Epimedium macrantha.
6. Aquilegia cœrulea.
7. Campanula grandiflora; blue and white varieties.
8. Oriental Poppy.
9. Variegated-leaved Day Lily (*Funkia Liliastrum fol. var.*).
10. Trillium grandiflorum.
11. Iberis corifolia.
12. Lychnis viscaria splendens.

Add to these a few of the best phloxes, pæonies, florist iris, delphiniums, pansies, and lilies, and the result will be a garden of which nobody need be ashamed.

FORWARDING LIMA BEANS. — The question is asked in your Notes and Gleanings, November, 1870, p. 291, "Cannot somebody tell us how to grow Lima Beans, so as to have them ripen in this northern climate early enough to get more than one or two messes before frost?"

As I had in my garden Limas in perfection for more than two months, and on exhibition in Massachusetts Horticultural Hall, August 13, and, September 10, received the first prize, I take the liberty to communicate my mode of culture, believing it will be of some interest to amateur cultivators, if not to others. The beans were planted in box frames ("cucumber boxes," so called by market gardeners), about the first of May, in the cold grapery, transplanted into open ground May 30. "Cucumber boxes" are simply sides of a box seven inches wide at the top, eight inches at bottom, and six inches high. The box being one inch smaller at top than bottom, allows plants, when transplanted in open ground, to slip out easily without injury. A warm exposure was selected, the soil well enriched and pulverized, and the boxes containing the plants taken from the cold grapery (a cold frame will answer as well), by placing a shovel under the box to prevent the plants from being disturbed in the removal. The boxes were placed about three and one half feet apart, the earth heaped on the outside of the box even with the top, and the box was then lifted, drawing it off over the plants. The plants were undisturbed by the change, and grew finely, a month or six weeks being gained by this mode of culture. "Cucumber boxes," purchased at the box manufacturers for six dollars and a half per hundred, will last many years, and be equally useful for melons, cucumbers, squashes, etc. *B. G. S.*

EVERGREEN RIDGE, CAMBRIDGE, MASS.

FUMIGATING GREEN-HOUSES. — One of the most essential operations in the care of the green-house is fumigating with tobacco, for all that have plants know how soon they become covered with the aphis or green fly if this is neglected. But it is not every one that can stand in a green-house, half filled with strong tobacco-smoke, and watch a fumigating pot, to keep it filled with tobacco, and prevent its blazing, both of which must be looked after. I venture to offer a simple plan to remedy this.

The fumigating pot that I use is a cylindrical one, two feet six inches high, and twelve inches in diameter; about nine inches from the bottom of the pot two narrow strips of zinc are placed across each other, with the ends fastened to the sides of the pot. On these rests a piece of zinc, one quarter of an inch smaller than the diameter of the pot, filled with holes. On this is placed the tobacco while burning. Below this, in the side of the pot, is a small sliding door for draught, which can be opened or closed as occasion requires. One half of the top lifts up, like a lid, to place in your tobacco, etc.; the back half is permanently fastened on to the pot, and to it is attached a three and a half inch pipe, with an elbow at the height of three feet from the top of the pot, and a horizontal piece three feet long from the elbow. The pipe fits on to the pot the same as a smoke-pipe on a stove; and when I wish to fumigate my house, I set my pot in a shed adjoining the green-house, and then put on my pipe, the end of it going through a hole in the partition into the green-house. I then put in the pot two or three clear coals of fire, and fill up with tobacco-stems, shut down the lid, and open the draught, and in a few minutes the house is filled with smoke. I then take off the pipe from the pot, set the whole away, stop up the hole in the partition, and the job is over without my clothing or lungs being filled with smoke. But may be every one has not got a shed attached to his green-house; in that case, take your pot outside, and have a pane of glass to take out, in the most convenient place, and put in place of the glass a piece of zinc, the same size as the frame, with a hole in it to let the pipe pass into the house, and it will work equally as well, or even better, than in a shed: for in this latter way I smoke the grapery. It gives me pleasure to recommend this simple plan to the readers of the Journal, and to assure them of its perfect success; and I have no doubt of its working well with any one who chooses to try it; but great care must be taken not to let the tobacco blaze. *J. G. Barker.*

CAMBRIDGE, MASS., Feb. 28.

CALIFORNIA GRAPE CULTURE. — How quickly one is reached in these days for a transgression! The paragraph on "The California Grape and Wine Crop," in our February number, brought us a reply, dated February 8, which reached us only a few days later, though too late for the March number, and accordingly published in the present number. The paragraph in question, by the way, was from the Horticulturist, and was duly credited to that journal, the editor having made the statement in the account of his personal observations. We are glad, however, that it has brought out so interesting an article from Mr. Estee.

SWEET POTATOES. — A Mrs. Miller last year raised on her fifteen-acre farm, near Lawrence, Kansas, 3000 bushels of sweet potatoes, valued at $1800.

WHERE TO GET TREES AND PLANTS. — We frequently have inquiries from our readers where to get trees, plants, seeds, etc. Now we cannot undertake to recommend one nurseryman or seedsman over another, and our readers cannot do better than to consult the "List of Nurserymen, Seedsmen, and Florists," in the advertising pages of the present number, where they will find not only the general business of each one, but the branch to which he has given special attention. New fruits, flowers, etc., will usually be found particularly mentioned in our advertising pages.

DENDROBIUM NOBILE. — At the monthly meeting of the Pennsylvania Horticultural Society, February 21, Mr. Alexander Newett, gardener to H. Pratt McKean, one of the most successful orchid growers in the country, exhibited a magnificent specimen of *Dendrobium nobile* in full bloom. The plant measured about four feet high, and about four feet in diameter, and contained seven hundred and sixty flowers. In the words of a distinguished florist present, it was worth going a hundred miles to see. The committee awarded it a special premium of twenty dollars, as the most gorgeous specimen ever grown in the United States. *National Farmer.*

THE BEARING YEAR IN APPLES. — I planted a small orchard of apple trees about twenty years since, and amongst them were about a dozen of the Porter apple, which has paid better than any other variety. In 1865 I sold one hundred and thirty-two dollars' worth from eight trees — all that was left of the dozen trees. In 1867 I sold from seven trees (one tree being destroyed by the caving of a clay bank), one hundred and two dollars' worth, and in 1869 I sold one hundred dollars' worth, not counting those that were for the use of the house, and those taken by boys. There is one tree of the seven, which, ever since it began to bear, would, on the bearing year, have on two thirds of the tree, or two large limbs, a full crop, while the other limb would not have any fruit on. The following year there would be a full crop on the limb that had none on the year previous, and there would be no fruit on the rest of the tree, or on the other six Porter trees in the same row. Now I would like to know the opinion of pomologists, whether scions taken from the sport would bear the same year as the parent, or would they return to the natural state. I grafted those trees myself, and put but one graft into each stock. If we could get fruit of the Porter apple every year, it would be a great achievement. *J. C.*

TROY, N. Y., Feb. 1, 1871.

[We think it probable that grafts taken from the sport would bear the same year with it. We have known the grafts taken from a Baldwin tree, which bore the odd year, for the purpose of testing this point, but do not know the result. If any of our readers can inform us, we hope they will do so. — ED.]

TREES FOR TIMBER. — To cause forest trees to run up straight and tall, and free from limbs, so as to be of the highest value for timber, they must be planted and grown thickly while young, and gradually thinned out, thus imitating Nature's method.

Forcing Strawberries. — Triomphe de Gand is deservedly the most popular variety for this purpose. Fine specimens were on our tables March 19 and 26. The usual method is to lay the *first* runners, in July, into thumb-pots, and by shifting into larger pots, and by utmost culture, to obtain large and fat crowns in October. With such conditions and fair management, a large crop is sure to follow. An experiment by Mr. O. C. Gibbs, of West Newton, is worthy of note in this connection. Taking advantage of the mild weather in January last, Mr. Gibbs lifted some large stools from the open ground, and placed them in boxes and pots for immediate forcing. Your chairman saw the crop as it was maturing in April, the result being a remarkable success — as large a crop as the largest in open culture — single stools in boxes, twelve inches square and seven inches deep, yielding over one hundred and fifty perfect berries. How short the experiment, how trifling the cost, and how abundant and delightful the result! No other fruit requires so short time in preparation, is so easily forced, occupies so little space, and comes to maturity so quickly. It would seem that the cost of preparation of plants for forcing might be greatly reduced by planting rows in the spring, hoeing and cutting off all runners, and thus obtaining the largest crowns of an entire season's growth; much larger, and consequently more prolific, than July runners could be made to be. These stools could be lifted after the autumn frosts, the last thing before the ground closes, and potted away to rest until the 1st of January. So easy, inexpensive, and certain is this process, that we hope to see a more general culture of this fruit in our green-houses, and even among our window plants. For, in point of beauty and interest, what can exceed the profuse clear white flowers, the luxuriant green foliage, and the bright colored fruit of the strawberry?

W. C. Strong, in Mass. Hort. Soc. Fruit Com. Report for 1870.

The Kentucky Apple. — I wish to correct my article, "Short List of Apples," in the March number of the Journal. It reads "Kentucky" (or McWhorter, etc.). It would read better if that whole line included in the parenthesis were left out. At least the name of McWhorter does not belong to that apple, although it is worthy any one's name. McWhorter never so called it to my knowledge. I presume I intended to write "of McWhorter," for it was he who brought it into notice in this region.

Since I wrote that article, I learn that this variety, the Kentucky, is proving sufficiently hardy to stand the climate in Benton County, Iowa, a place that tests "half hardy" varieties pretty severely.

Where I say "much destruction was done to trees last fall," should read, "a year ago last fall," for last fall and winter trees were not damaged, but are now, in March, in very fine condition. *Suel Foster.*

The Water Apple is a desirable kind for places subject to late spring frosts, as it blooms nearly two weeks later than other varieties. The fruit is of medium size and conical form, whitish-yellow, with a rich purplish-crimson cheek; flesh white, very tender, juicy, pleasant subacid; quality "very good." Bears abundantly every other year, and ripens in October and November. Originated in Durham Township, Bucks County, Pa.

New Western Fruits. — We find in the Report of the Wisconsin Horticultural Society notices of the following new fruits : —

Pewaukee Apple. — Medium to large, round, obovate, dull red on a bright-yellow ground, with whitish dots all over ; flesh yellowish white, with a rich, mild, sub-acid flavor. January to June. Tree an upright centre ; branches at almost right angles. Received a premium of fifty dollars from the society.

Blue Tweens Plum. — Small, dark blue, with a whitish bloom. The tree is fifteen years old, stands on a high ridge exposed to the south-west, west, and north-west ; bears large crops every other year ; is very hardy, but grows very slowly. Fruit hangs in twos ; flesh yellowish green, adheres to the stone on one side, and, when fully ripe, is of a rich, sprightly, sub-acid, agreeable flavor. Last of September to middle of October.

Imperial Washington Plum. — From seed of a Lombard, apparently crossed by Imperial Gage or Washington. Fruit large, oblate, nearly round, red brown, with light yellowish specks ; skin thin and rather tender ; flesh greenish yellow, juicy, and rich, quite firm, and nearly free from the stone. Middle to last of September. Tree vigorous and productive, nearly equal to the Lombard in hardiness. All three of the above fruits were raised by Mr. G. P. Peffer.

The Rubicon, Northern Blush, and Reliance Apples, which are highly recommended for hardiness, have been previously described. The Marengo, Chicago, and Coral, of the Siberian species, which were noticed and figured in our vol. v., p. 203, are again recommended, and two new ones are described, as follows : —

Winter Gem. — One and one fourth inches in diameter ; very handsome, deep red, or purple, on a rich yellow ground ; heavy bluish bloom ; flesh yellowish white, juicy, tender, rich, mild, sub-acid ; quality best ; use, ornament and dessert. Season, January to March.

Kishwaukee. — One and three fourths inches in diameter ; bright golden yellow, spotted with russet dots ; flesh yellow, crisp, agreeable, acid, rich ; quality good ; use, cooking. Season, February to May.

The demand for new seedlings has had the effect to put the whole horticultural fraternity on the *qui vive* for new Siberians, and already some scores have been figured and described in various horticultural journals. At the fair there were forty-seven varieties exhibited. Among them were some new fall sorts of decidedly high merit as dessert fruits, especially Plumb's Nos. 1 and 2, which are delicious, sub-acid, fine-grained, and tender ; also Brier's Sweet, by A. G. Tuttle, which measured two inches and a quarter in diameter ; very sweet and rich.

The *Janesville* grape received a premium for the best seedling grape, to be shown for three successive years. The vine is healthy, perfectly hardy, enduring the severe cold of the past seven winters without protection, bearing abundantly each year, of strong, luxuriant growth. The fruit ripens about the middle of August ; bunches medium, compact, and shouldered ; berries large, round, black, covered with a light bloom ; flavor sprightly, not very rich ; fair, but not first rate, producing a first-rate red wine.

Grapes. — Mr. F. R. Elliott says there are two million acres of grapes in the United States.

LIQUID GRAFTING WAX. — We find in the Country Gentleman, the following recipe for liquid grafting wax, from Mr. B. P. Ware, of Marblehead, Mass., who has used it for several years, and considers it invaluable. We know that Mr. Ware's opinion can be relied on.

"Melt one pound of rosin gently, then add one ounce of beef tallow; stir it well, take it from the fire, cool off a little, then mix with it one tablespoonful of spirits of turpentine, and add seven ounces of alcohol, ninety-five per cent. proof: this will cool it down so rapidly that it will be necessary to put it over the fire again, stirring it constantly, taking care that it does not inflame: remove from the fire as soon as the lump begins to melt again, and continue stirring until thoroughly mixed. It will appear like strained honey. After setting the scions, apply a thin coating with a small brush; the wax will soon harden, and is impervious to air and water.

"Use a kettle large enough, so that it will not foam over when you put in the alcohol, which should be poured in gradually."

RAISING APPLE STOCKS. — Mr. D. W. Kauffman, of the Iowa Homestead, recommends sowing apple seeds broadcast. Though it costs more to cultivate an acre, each stock stands alone, and they grow to a much better size than they do in drills, and not more than half as much land is needed. The seed should be soaked in warm water two or three days, then mixed with an equal amount of sand, and kept wet until planting time. Plough deep, and put in the seed about the middle of April, in new land that was first broken the year before. Sow just like wheat, two bushels or more to the acre. Cover by harrowing and cross-harrowing, and during the summer keep clean with hand and hoe. In the fall, by running under with a root plough, and then pulling up, half a dozen hands can take up fifty thousand in a day.

GRAFTING THE HICKORY. — Hickory nuts vary much in their wild state, but the difficulties of propagation have prevented the multiplication of the choicer specimens. Mr. David B. Dickinson, having tried various methods of grafting without success, hit upon the following, which allows him to propagate the hickory with satisfactory results. Early in the spring he grafts the stock, which should be small, very near the surface, or, if possible, below it. The graft is waxed in the usual manner, and then the earth is heaped around to cover all the scion except the upper end. Mr. D. has grafted trees now coming into bearing, from which he brings us specimens of the nuts.

American Agriculturist.

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

ŒNOTHERA WHITNEYI. — This splendid evening primrose was discovered at Shelter Cove, Humboldt County, California, in 1867, and was named for Professor Whitney, the distinguished head of the California State Geological Survey,

ŒNOTHERA WHITNEYI.

in the prosecution of which it was discovered. The plant is a foot or eighteen inches high, with oblong-lanceolate leaves and very numerous flowers covering the whole of the upper part of the plant. The flowers measure between three and four inches across. The petals are oblong, obcordate, rose-red, with a dark crimson blotch about the centre. The illustration, which is from the Gardener's Chronicle, shows a flower of the natural size, and also an outline showing the habit of the plant. The colored plate of this plant in the Botanical Magazine, representing the plant of full size and covered with flowers, is truly magnificent, and we wish we could present it to our readers. The plant was introduced into England in 1842, but no seeds having been saved, it was unfortunately lost, until its reintroduction in 1867. It is to be hoped that it may now be retained in cultivation, as few, if any, annual plants exceed it in beauty.

The War and the French Nurseries. — A correspondent has kindly favored us with a Post Card, written by a German serving with his regiment near Paris, and giving an account of the condition of some of the nurseries near that city. We see that our agricultural friends are devising means to assist their French brethren with seeds, etc.; and it will become a question whether our nurserymen may not at the proper time follow so good an example, and transmit grafts, or what not, in aid of their distressed colleagues: —

"Chatenay, December 4, 1870.

"On my return last night from an excursion to Versailles, Palaiseau, Longjumeau, and Corbeil, which occupied three days, I found your favor of the 27th ult., and hasten to give you the information desired. I am sorry I have but sad news about the establishments; they are all deserted, and the magnificent collections are perishing. In detail I can only report of the establishments of MM. Croux and Durand fils; the others near Bagneux, Châtillon, and Bourg-la-Reine we only passed several times at night, when marching to the batteries in course of erection, for the staying there during the daytime is not very agreeable on account of the shells from Vanvres, Montrouge, and Bicêtre. M. Croux's principal establishment at Chatenây is the quarters of the staff of the Bavarian Artillery; the large Palm-house, sixty to eighty feet long, is occupied by the horses, the flower-tubs being made use of for cribs; the magnificent Conifers, — Wellingtonias, Pinus Pinsapo, &c., — of which we found numbers of fine specimens, have all been cut down to form a fence along the road to Fontenay-aux Roses, to prevent the French from having a look into our batteries from their forts, But the most sad sight is offered by the Jardin pour les études pomologiques, belonging to M. Croux, and situated near Aulnay. The beautifully trained fruit trees, after having been much broken by the pulling out of the wires, which were used for making gabions, are now completely eaten down by the two thousand sheep and eighty to one hundred cows shut up in the garden. Nor have the nurseries in the open field been spared; the stems of the young trees had to serve as stakes for gabions, while the branches were used for fagots. A similar sad sight is afforded at the branch establishment of M. Durand fils, near Clamart; the green-houses being, to a great extent, demolished by shot coming down here as thick as hail, and the plants they contain are dried up or frozen, for we had — 6° R. = 18° F. the day before yesterday, and yesterday morning a considerable fall of snow. It will be about the same with the other establishments not visited by me, and it may be taken for granted that the losses of these people are beyond replacement, and will bring many of them to the grave."

Gardener's Chronicle.

Destroying Insects. — A solution recommended by M. Cloez, of the Jardin du Muséum, Paris, for destroying plant-lice and other insects, is made as follows: Three and one half ounces quassia chips, and five drachms stavesacre seeds, in powder, are placed in seven pints of water, and boiled down to five pints. When cooled, the strained liquid is ready for use, and may be applied either by a watering-pot or syringe. *Florist and Pomologist.*

KAINIT is a mineral obtained in Anhalt-Dessau, the distinguishing quality of which is, that its chief constituent is potash. The Gardener's Magazine gives an account of an experiment with this new fertilizer in the cultivation of potatoes, the large quantity of potash required by this vegetable rendering it most suitable for such an experiment. Three plots were planted as follows: —

Plot No. 1, sets two feet apart, in four-feet rows, with kainit. The first three stools in this plot were found to consist of ninety-six tubers, weighing in all fourteen pounds. The total produce was at the rate of ten tons to the acre.

Plot No. 2, sets three feet apart, in four-feet rows, with kainit. The first three stools consisted of two hundred and eight tubers, weighing twenty-seven pounds in all. The total produce was at the rate of twelve and one half tons per acre.

Plot No. 3, sets three feet and two feet, alternately, in four-feet rows, without kainit. The first three stools averaged twelve tubers to a root, weighing in all four pounds. The total produce was at the rate of four and one half tons per acre.

The present price of kainit, in England, is four pounds sterling per ton. Worthless compounds are sold under the same name.

DWARF PAMPAS GRASS. — Every one at all conversant with plants, knows the beauty of the Pampas Grass, and fully appreciates its merits. It is, however, one of the giants of the flower-garden, growing not only to a considerable height, but also forming immense masses or tussocks, if it grows in any degree satisfactorily. This shuts it out from situations where the space is limited, however much its peculiar type of beauty may be desired; and though its rival, the *Arundo conspicua*, is less bulky, it is not less aspiring. Those who desire it, may now, or shortly will be able to obtain a dwarf form of Pampas Grass, *Gynerium argenteum pumilum*, which is exactly suited for positions where a miniature pampas is desired. It is a tufted plant, with all the features of the ordinary pampas, except its bulk and height, as may be judged from the fact that its flowering culms rise only about three feet, where the ordinary kind grown beside it reaches six or seven feet. The panicle is erect, silvery, and of somewhat pyramidal outline, in which respect it seems to differ from the ordinary form. It is a seedling, now of several years' probation, raised by Mr. Charles Noble, of the Sunningdale Nursery. *Gardener's Chronicle.*

CALADIUMS. — You may start caladiums any time you choose. Give them a bottom heat of 70° or 75°; examine the roots to see that there is no sign of decay on them. Use small pots to begin with, and do not give any water at all, until the leaves begin to show above the soil. We have known whole batches of caladiums to be lost by saturating the soil with water before the bulbs began to throw out roots. *Gardener's Record.*

LARGE EUCALYPTUS. — A giant Eucalyptus was felled lately in the Dandenong Ranges, Australia. At one foot from the ground the circumference was 69 feet; at 12 feet from the ground the diameter was 11 feet four inches; at 78 feet, diameter 9 feet; at 144 feet, diameter 8 feet; at 210 feet, diameter 5 feet. The tree was 330 feet high. *Gardener's Magazine.*

CARPET-BEDDING is that system of planting summer flower-beds which has come into vogue during the last two or three years, in which the whole surface of the beds is clothed with a carpet-like covering of low, close-growing plants. As applied to decorative gardening, it also implies the arrangement of plants having leaves of different colors in such a way as to work out ornamental designs. Since the first advent of this system, it has always been most effectively carried out by Mr. Gibson, at Battersea Park, this year with fully as much success as on previous occasions, and we are glad to be able to give some illustrations which will serve to make the manner of planting intelligible.

The principal carpet-bedding at Battersea during the past summer consisted of two parallelogram and two circular beds, and the picture they presented on the fresh green turf was most exquisite. Of the two larger beds, not having

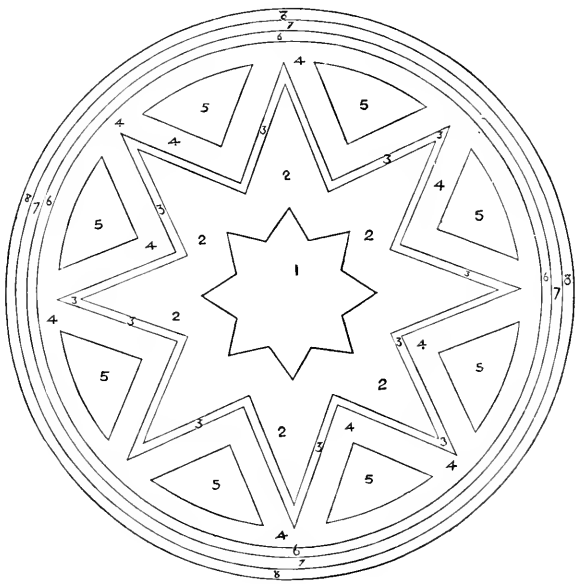


FIG. 1.

illustrations to make a description intelligible, we shall only observe that they were perhaps the most effective, on account of the greater scope of the design. The planting was done with very much the same materials as the circles, and the whole was kept dwarf and close on the same plan. The circles were planted with the following subjects — so closely, be it understood, that the surface was entirely covered by the plants, leaving no raw earth visible between them: —

FIG. 1. — The central star (1) was composed of the yellow-leaved Pyrethrum Golden Feather; this was surrounded by a larger star (2) of the pale rosy-tinted *Alternanthera amœna;* next came a narrow line (3) of the gray-leaved *Santolina incana;* then a broader band and enclosing circle (4) of the buff orange-

tinted *Alternanthera paronychioides;* then enclosed triangular beds of the bright orange-red *Alternanthera magnifica;* and finally, three boundary circles — yellow Pyrethrum Golden Feather (6), the rosy *Alternanthera amœna* (7), and the gray, rosulate-leaved *Echeveria secunda glauca* (8). These combinations were all admirable.

FIG. 2. — Here the central star (1) was of the gray-leaved *Santolina lavandulæfolia;* next the deep orange-red *Alternanthera magnifica* (2); then Pyrethrum Golden Feather (3); a series of trapezoids of *Alternanthera amœna* (4); the spaces intervening between the points of these lozenge-shaped masses, and extending outwards far enough to finish with an even circular line (5) *Santolina incana;* then in succession a circular band of *Alternanthera amœna* (6), and another of *Echeveria secunda glauca* (7). The design was very effective, but

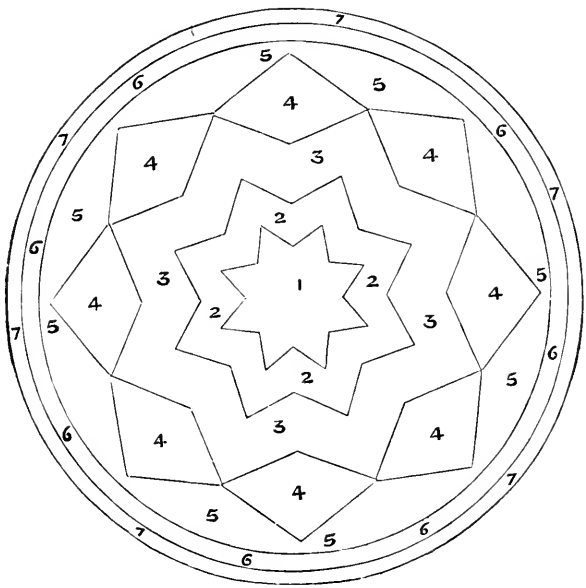


FIG. 2.

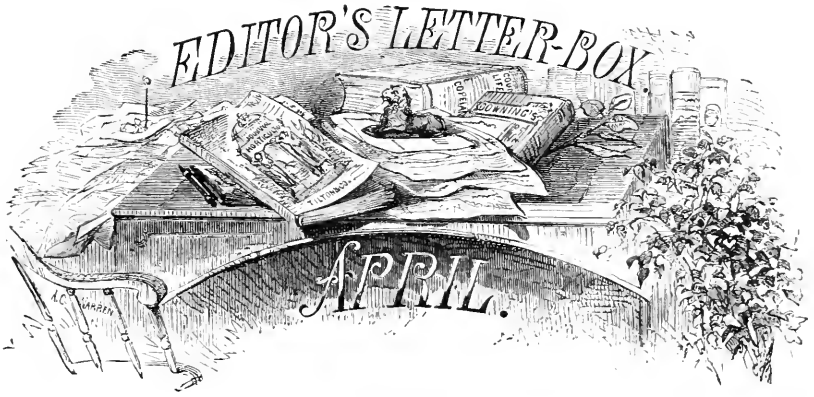
we gave preference to No. 1, in which the broad mass of *Alternanthera amœna* came out in a very telling manner.

The plants used for this style of bedding are necessarily low growing and compact; but in order to bring out the design, it is imperative to keep them pinched in to a regular height, though not necessarily uniform, as a slight variation has the effect of showing some of the colors as it were in sunk panels. No garden of any pretensions should be without its one or more carpet-beds, as they are equally effective with flowering-plants, and far less trouble when once planted. *M., in Florist and Pomologist.*

Wheat and Barberry Rust. — The theory has long been prevalent among practical agriculturists, that the proximity of barberry trees produces rust in wheat. Men of science, unable to trace herein the sequence of cause and effect, long derided the idea, and placed it among the prejudices of the agricultural mind. The facts of the farmer have, however, been too strong for the science of the botanist, and experience has won the day over theory. Sir Joseph Banks, in 1806, suggested that the parasitic fungus of the barberry and that of the wheat were of the same species, and that the seed is transferred from the barberry to the corn. It was reserved for the German fungologist, De Bary, within the last few years, to establish the truth of this theory, and to prove the existence of the phenomenon of Alternation of Generation among fungi. The researches of Steenstrup, and others, have made us familiar with this remarkable phenomenon among the lower forms of animal life, but had hardly prepared us to meet with it in the vegetable kingdom. It appears probable, however, that the phenomenon is by no means uncommon here also — affording another instance of the law that it is in their lowest forms that the animal and vegetable kingdoms approach one another most nearly; and that whole tribes of fungi, hitherto considered distinct, are but different phases of one another. These known orange-red spots, so common on the leaves of the barberry, are produced by the *Æcidium berberidis*, while the rust of wheat and other cereal crops, but found equally on some other species of grass, as the common couch-grass, or Triticum repens, is the *Puccinia graminis*. In the volume for 1865, of the Monatsberichte der kon. preuss. Akademie der Wissenschaften zu Berlin, is a paper by Dr. De Bary, giving an elaborate account of his experiments on the propagation of these two fungi, in which, if his experiments are reliable, he clearly proves the correctness of Sir Joseph Banks's suggestion, that they are one and the same species. The experiment was tried, with due precautions, of inoculating the leaves of the barberry with the spores of the Puccinia, the result being the production, not of the same fungus, but of the Æcidium, while the sowing of the spores of this latter fungus on the leaves of couch or wheat, produced conversely the Puccinia. By sowing the spores of either fungus on the plant on which it was itself parasitic, he failed altogether to reproduce the same plant; and this alternation of generation may serve to account for the fact, which has often been noticed, that rust is apt to appear, not in successive, but in alternate years, on the same crop. *Nature.*

Sub-tropical Gardening. — Here is a hint for those who follow out sub-tropical gardening. How truly noble would be the effect of fine well-flowered specimen plants of *Datura* (*Brugmansia*) *arborea* and *sanguinea*, and their allies, as centres for beds of low-growing foliage plants! The larger and more tree-like the individual plants thus employed the better. Their tropical forms of leaf and flower would be strictly in character in such an association.

Gardener's Chronicle.



THE Editors of "Tilton's Journal of Horticulture" cordially invite all interested in the various branches of horticulture to send questions upon any subject on which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to inquiries in regard to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to horticulturists.

We would especially invite our friends to communicate any little items of experience for our "Notes and Gleanings," and also the results of experiments. Such items are always readable, and of general interest.

We must, however, request that no one will write to the contributors to our columns upon subjects communicated to the Magazine.

Anonymous communications cannot be noticed: we require the name and address of our correspondents as pledges of good faith.

Rejected communications will be returned when accompanied by the requisite number of stamps.

G. P. W., Rockport, Mass. — Camellias seldom succeed in parlors, because they are too dry and warm. If you can give them a cool room, with a somewhat moist air, and screen them from the direct rays of the sun, you may succeed. Like all broad-leaved evergreens, the foliage is injured by the hot sun; hence in camellia-houses the glass is whitened to make it less transparent. We have known camellias bloom in a room with only a northern window.

S. P., Belvidere, Ill. — Lemons and oranges, from seed, will blossom and bear fruit without budding or grafting; but it is better to work them, for two reasons: first, they cannot be depended on for good fruit, as they run into varieties like apples and pears; and second, the worked trees bear much sooner than the natural. In short, the same principles apply to them as to apples and pears. Budding while young is preferable to grafting.

D. P., South Lyndeboro', N. H. — A good way to make a trellis for your grape vines, is to set posts ten to twelve feet apart, bracing the end posts. The posts should be from five to six feet high, and three inches or more in diameter. The proper size for the wire is No. 8, which measures thirteen feet, and costs ten cents per pound, or No. 10, which measures twenty feet, and costs eleven cents per pound. These prices are for small quantities. The lower wire may be twenty inches from the ground, and the others the same distance apart, though if they are placed closer, the vines will train themselves without assistance. Coating the wires with coal-tar preserves them as well as galvanizing, and is much cheaper. It must be repeated once in two years. The posts may be preserved by charring, or by boiling in gas tar. Thin tar is preferable to thick, as being more penetrating. Crude petroleum would, no doubt, answer an excellent purpose in preserving them. The arm system of training is preferred to the fan. Whatever else you do, give the vines plenty of room, especially the strong, growing kinds.

T. R., Worcester, Mass. — Gooseberry bushes should be pruned so as to keep the branches from resting on the ground. Houghton's Seedling is so spreading in its habit that it is difficult to grow it as a bush, and the best way is to train it in pyramidal form, with a leading shoot, which should be kept tied to a stake, and with regular tiers of branches from the main stem. All kinds should be kept open by pruning, cutting away the old wood and encouraging the new, which always gives the best fruit. The only rot we have ever noticed is a kind of scald, apparently produced by the heat of the sun. We know no way to prevent it, but would advise planting the bushes in a cool, moist place. We do not think the spiders or webs had anything to do with it.

Protecting Strawberry Plants. — A correspondent of the Journal asks how to keep the mulch, which he puts over his strawberry plants, from "blowing away." Nothing is easier, if he uses the proper material. Dry leaves one cannot keep still. The least breath of wind will scatter dry straw also. My plan is to use old straw from a wheat, rye, or oat stack, or salt marsh hay. These materials are usually wet at all times: but if he is compelled to use dry straw at any time, he must wet it thoroughly before scattering it. This will cause it to lay close, and the wind cannot blow it away, especially if it lays a day or two to settle. Evergreen boughs, if convenient, are excellent for mulch, and if put on in large limbs, no wind can move them. I never have any trouble by wind blowing wet straw from my plants. *Woodman.*

Stanford, Ky.

THE PRESIDENT WILDER STRAWBERRY. — The plants I received in fall of '69 I lost by over-nursing, although they were good plants. In the spring of '70, I purchased one dozen plants of Mr. Merrick, receiving thirteen, which, with the two I received from you, I set in a row in a bed about twenty-five feet in length, in the garden, giving them good attention during the season. They grew finely, standing the drought and very warm weather of last summer well without water. By estimation, I think I have nearly one thousand plants from them; so you see they threw out runners quite freely, though I think they will not do so ordinarily, so much so as to be objectionable, as is the case with some varieties.

A little later in the season I received another lot from you, and being busy at the time, I hurriedly set them in pots, in which they remained for some time, not receiving much attention, when they were removed to a field in which other kinds were growing. These, also, for the chance they had, did very well.

COLUMBUS, N. J., Feb. 22. Yours, &c., *A. M. W.*

A. K., Foxboro', Mass. — The best microscope for studying fungi, is that known as the Boston Microscopic Society's "Student's pattern." The cost is about sixty dollars.

MR. EDITOR: On the 16th of this month I made my 99th pressing of cider. The apples had lain frozen in the mill three weeks. The cider appeared thick, and very sweet to the taste. I eagerly applied my saccharometer to test the saccharine matter contained in it, thinking if my palate was not at fault, the cider must certainly indicate from eighteen to twenty by that instrument.

Lo, and behold, it sunk to ten! indicating saccharine matter only for a basis of about five per cent. of alcohol, — an amount too low to pass the cider through its first workings without danger of being converted into acetic acid, or cider vinegar.

Now two questions occur to my mind. Did the freezing of those apples take out the saccharine matter, or was it owing to the season of the year?

I shall make another pressing soon, of apples that have not been frozen, and will report to you the indications of the saccharometer. Doubtless you, in your extensive reading, may know or have learned the cause of the deficiency that I have found. *F. S. N.*

WEST PEABODY, MASS., Jan 22, 1871.

[We know that horticultural editors are expected to know everything; but they don't always. We are unable to explain this deficiency in saccharine matter, except on the theory that the freezing which destroyed a part of it, destroyed a still larger part of the acid, leaving the remainder more prominent to the taste, though why this should be so, we cannot tell. The taste is not always a guide to the quantity of sugar in a fruit. Mr. Underhill remarks, in our last volume, p. 149, that the Scuppernong grape has an insipid sweetness, occasioned by a lack of the proper elements of acidity, while the seemingly sour Clinton has vastly more sugar than many of our most popular grapes. We hope that if any of our readers can throw any light on the subject, they will let us hear from them. — ED.]

B., Central Ohio. — The Hackberry tree (*Celtis occidentalis*), is distinct from the Sweet Gum (*Liquidambar styraciflua*). The Black Haw (*Viburnum prunifolium*), is distinct from the Nannyberry (*Mespilus canadensis*). It is, however, difficult to answer such questions as yours with certainty, as the same vulgar name is often applied to entirely different plants in different places.

Lilium aurantium does not differ from *L. aurantiacum*. The latter is the proper spelling.

Mrs. F. N. B., Dyer Station, Lake Co., Ind. — Your plants are, No. 1, *Campanula grandiflora*. No. 2, *Hesperis matronalis* (Dame's Violet, Purple Rocket, etc.). No. 3, *Lamium purpureum* (Dead Nettle). No. 4, *Lotus tetragonolobus*. No. 5, *Tradescantia virginica*. This, which is wild with you, is here cultivated in gardens under the name of Spiderwort. No. 6, *Agrostemma githago*, a European weed found in the grain ("corn") fields. No. 7, *Funkia cærulea*.

We do not think you need much instruction how to send specimens of plants; they could hardly be done better than yours, though we would like to have it stated, in every case, whether they are cultivated or native. For the benefit of others, we will say that these specimens were *carefully* pressed, and tacked by a few stitches to a piece of white paper, on which was noted the size, character, and habit of the plant. The specimens were then placed together, with a piece of newspaper between each, and the whole enclosed between two stiff pieces of pasteboard, and made into a bundle. The specimens should be in full flower, if possible, or else in seed, and the descriptive notes should be as full as possible.

The Winter in Minnesota. — We have had the *mildest winter* I ever saw in Minnesota, and I have been here twenty winters now. Fruit-buds all good as yet: have had but very little snow, and no rain of any account yet. Last year was the poorest season for fruit since I have been in the business. Grapes ripened well, what there was of them, but all fruit crops were light here last year.

Saint Paul, March 3.

The Winter at Norfolk, Va. — The weather has been seasonable, i. e., cool since Christmas, fruit buds showing no signs of swelling, which is a favorable indication of a peach crop. *G. F. B. L.*

Feb. 15.

The Season in Georgia. — Peach trees in full bloom here; also garden peas. Potatoes growing, and several inches high. We are eating lettuce, radishes, asparagus, just from the garden. *N.*

Augusta, Ga.

HARDY SPRING FLOWERS.

By Francis Parkman, Jamaica Plain, Mass.

Between the first opening of spring and the blooming of the bedding plants and annuals, there is a period of several weeks, in which most gardens show little color but green. Hyacinths, Crocuses, Fritillarias, Narcissus, and a few other bulbs may be made to do a great deal towards filling the gap, but their bloom is soon over. Few of the shrubs blossom before June, and it is often midsummer before the Verbenas, Geraniums, Fuchsias, and Heliotropes make even a tolerable show. The month of May becomes a month of promise without performance, and flowers are scarce at the very time when most people long for them most. It is easy to have them in abundance, and with very little trouble, by the free use of early flowering perennials. The following kinds will be found to answer the purpose perfectly. They all bloom before the end of May. There are many others blooming in early June, which we may perhaps describe hereafter.

First, we would name the whole race of violets, including the Pansy. By sowing pansy seed in August or September, and covering the young plants with leaves during winter, an abundant bloom can be had at the first opening of spring. The single Russian ever-blooming violet blossoms as early as the crocus, as does also the superb variety called the "Czar." The double English and the Neapolitan soon follow.

Polyanthus and Yellow Primrose. These are later than the violets, and, in most places, bear the winter perfectly if covered with leaves, as will also their relative, the Alpine Auricula, one of the prettiest of early flowers.

Phlox subulata, the "Moss Pink," is well known. *P. Verna* is equally pretty; and a little later, *P. divaricata*.

Helleborus niger, the "Christmas Rose," usually blossoms in spring, in this country. To-day, March 27, there is a clump of its large white flowers in our garden, regardless of the snow which is falling on them. Near it, *Erythronium Dens-canis*, the European "Dog-tooth Violet," begins to show its mottled leaves, and long purple flower buds.

Adonis vernalis. Large, rich yellow blossoms.

Trillium grandiflorum. This has already been described in the Journal of Horticulture. It is one of the best of early flowers.

Aubrietia. There are several species of these very pretty flowers; *A. deltoides* is the most common, and is very desirable.

Arabis albida, and *A. alpina*. A mass of white blossoms.

Corydalis nobilis. Yellow and black; rather rare, but well worth some pains in the finding.

Sanguinaria canadensis. The well-known "Bloodroot."

Iris cristata. A beautiful little sky-blue Iris, not six inches high.

Doronicum caucasicum. Yellow; shaped like a single aster.

Epimedium macranthum. Curious and beautiful.

Hepatica. The double red variety is easily cultivated here. The double blue is more shy.

Dodecatheon Meadia. The "American Cowslip."

Pæonia tenuifolia flore pleno. A splendid herbaceous plant, usually in bloom before the end of May.

Saxifraga cordifolia. Large clusters of red flowers.

Uvularia grandiflora. A graceful native plant, with pendent yellow flowers.

Trollius. Two sorts, resembling gigantic "Buttercups."

Mertensia (*Pulmonaria*) *virginica*. Deep blue, in drooping clusters.

Orobus vernus. Red, pea-shaped blossoms.

Anemone pulsatilla. Purple.

Plant a good supply of these, with Lily of the Valley, Solomon's Seal, white and blue Periwinkles, Dielytra, etc., and you will not be in want of flowers in May. The above need no winter protection but a few dry leaves, unless your soil is very cold and wet.

ARE PEACH BUDS WITH LARGE PETALS THE HARDIEST?

By W. C. Flagg, Alton, Illinois.

I NOTICE the fact this current year, — and it is to some extent a repetition of former experience, — that the buds of peach trees having large blossoms seemed to escape injury from cold to a considerably greater extent than those with small.

Conspicuous among these was the Hale's Early, which set a heavy crop of fruit in localities where tender budded varieties, like the Early and Late Crawford, had not more than a dozen or two specimens left to the tree. The Early York (serrate), though not so hardy, was pretty well set with fruit; whilst the seedling trees throughout this region, which generally are large blossomed, have a bounteous promise of fruit. Even an anomalous large blossomed yellow cling among my Crawford's Late is not thinned out like other yellow peaches, but is full of fruit and promise. The October Yellow of Teas and a white peach called Late Serrate showed the same results.

I incline strongly to the belief, but put it in the shape of a query, rather than of an assertion, that this exemption from injury was the result, or at least the attendant fact of the large blossoms. Whether the larger petals, enveloping in a thicker covering, better protected the more vital parts of the flower, or whether they simply indicate and are the result of a stronger vitality, may be a matter of speculation. I incline to the former opinion, because I find some varieties with large blossoms, but weak vitality.

Whatever the cause, if the fact be as I suppose, we have a practical hint in the selection and originating of varieties for unfavorable localities, and for more certain results with a precarious crop everywhere.

Downing enumerates about fifty-one varieties of peaches and eight of nectarines as having the blossoms large; and, though it is a mere muster-roll, I subjoin the former as of possible interest in this connection.

A Bec,	globose,	early August.
Acton Scott,	"	middle August.
Alexandra,	"	early August.
Astor,	"	end August.
Austin's Late Red,	reniform,	middle October.
Barrington,	globose,	early September.

Belle Bausse.	globose.	early September.
Belle et Bonne.	serrate.	August.
Bordeaux Cling.	reniform.	early August.
Clinton.	globose.	end August.
Comtesse de Hainaut.		September.
De Bonlez.		September.
Doctor Hogg.	reniform,	early August.
Double Montagne.	serrate.	middle August.
Dwarf Orleans (Italian Dwarf).	serrate.	
Early Admirable.	globose.	middle August.
Early Alfred.	"	early August.
Early Anne.	serrate.	end July.
Early Grosse Mignonne.	globose.	early August.
Early Rivers.	reniform.	middle July.
Early Silver.	"	middle August.
Early York (serrate).	serrate.	middle August.
Eaton's Golden.	reniform.	middle September.
Grosse Mignonne.	globose.	middle August.
Hale's Early.	"	end July.
Honey.	reniform,	last August.
Late Yellow Alberge.	"	October.
Leopold I..	reniform.	September (Belgium).
Lord Palmerston.	globose.	middle and end Sept.
Madame d'Andrimont.	serrate.	August.
Madeleine de Courson.	"	middle and end August.
Malta.	"	end August.
Mignonne Dubarle.	globose.	middle August.
Montgomery's Late.	reniform.	September.
Nectarine.	"	middle September.
Noblesse.	serrate.	end August.
Old Newington.	"	middle September.
Osceola.		end September.
Pavie de Pompone.	reniform.	early October.
Picquet's Late.	"	early September.
Princess of Wales.	globose.	October.
Pucelle de Malines,	serrate.	early September.
Red Nutmeg.	reniform,	middle July.
Rivers's Early York.	globose.	early August.
Shanghae.	reniform.	end July.
Smith's Newington.	serrate.	end August.
Sumner's White Free,		end August.
Tinley's October,	reniform.	middle October.
White Ball.	"	early September.
White Magdalene,	serrate.	middle August.
White Nutmeg.	"	middle July.

Globose 16. Reniform 17. Serrate 14. Unknown 4.

Let us see what could be made out of this practically. Throwing out the serrate varieties as too liable to mildew and other disease, we have about thirty varieties from which to choose a succession. Here are some of the varieties that seem to me worth looking up. I have arranged them in a kind of succession, according to Downing; but as the periods of ripening are not referred to one locality, this of course is not correct.

Early Rivers. — A large, pale peach, ripening in England, in orchard-house, July 14, or three weeks before Early York.

Hale's Early. — Subject to curculio and rot, but otherwise first rate.

Rivers's Early York. — A seedling of Early York, retaining the large flowers, and putting on the globose glands.

Dr. Hogg. — Large, but white, which may be an objection. First-rate in quality, according to Mr. Rivers.

Early Grosse Mignonne.

Acton Scott.

Early Admirable.

Grosse Mignonne.

Mignonne Dubarle.

Barrington.

Belle Bausse. — Has a thin skin, which may unfit it for market purposes.

Picquet's Late. — This probably should come at the bottom of the list. Mr. Berckmans pronounces it the best market successor of the Smock.

Lord Palmerston.

Montgomery's Late.

Nectarine.

Osceola. — Southern experience is rather against this as a market sort. I do not know that it has been fruited in the north.

Princess of Wales.

Tinley's October. — (Cling), a southern variety.

This is mainly a theoretical list, as most of the varieties have had no thorough test in this country. I suggest it, and ask those who have tried any of them to give their experience, especially as regards the hardiness of their blossom buds.

Alton, June 25, 1870.

THE APPLE-TREE BORER.

By J. M. B., Quasqueton, Iowa.

If there is any plague of insects, next to the potato bug, which has haunted my sleeping hours, and should rank me a saint in my waking ones, for not breaking the third commandment, it is the apple-tree borer. For ten years I set out fruit trees, combined any amount of eternal vigilance, cold steel, and knee pads, only to see them, one after another, succumb to the little pests, with their trunks looking as if they had received a double dose of malignant small-pox. Not content with attacking the base of the trees, they would go as high as the lower branches, and drill themselves into the crotches.

I was in despair; and when I had written to some great light of horticulture of my trouble, and was coolly informed "that the fruit grower in every new country was subjected to such *little* inconveniences," perhaps I was something else. I was about to give up vanquished, and after committing my orchard to the flames, retire with all the honors of war, — glory nowhere, — when I was advised to try the following method, which for the past two years has proved, with me, a decided success. In the spring, just before vegetation starts, level the ground, and pack it firmly around the foot of the tree, in a circle of from two to four feet in diameter, according to the size of the tree. Take unleached ashes and air-slaked lime equal parts, well mixed, and apply to the circle thus made, covering the ground well over two or three inches in depth. Then take strong soapsuds, or better, a solution of half a pound sal soda to one gallon water, and wash the trunk and base of the lower limbs thoroughly. Repeat this operation in the fall of the year, just before freezing weather, — ashes, lime, washing, and all, — and if any one, who is as badly troubled as I have been, and has never seen this simple recipe, will try it, all I have to say is, that if his experience equals mine, he will send me the largest apple, post-paid, his rejuvenated trees bear, and Uncle Samuel will allow in the mail-bags.

All my trees, that were not damaged before I tried this plan, are as fine and thrifty as any I ever saw, and I have not as yet found the mark of a borer upon them.

VIOLA CORNUTA.

By JOHN C. HOVEY, Cambridge, Mass.

THIS fine species of *Viola* is a native of the Pyrenees; and although known to botanists as early as 1776, did not find its way into general

VIOLA CORNUTA.

cultivation until within the past few years. It forms a neat, compact

plant, four to eight inches high, with small, heart-shaped leaves, and delicate light mauve-blue flowers, much resembling our native species *V. pedata* in shape, but larger.

It continues to bloom in great profusion from early in April to October, and although a hardy perennial, will flower well the first year from seed. It is very effective, either when planted out singly or in masses. A new and beautiful variety, with pure white flowers, was introduced from Europe the past season.

EXCELLENT STRAWBERRIES.

By "Woodman."

I shall be brief in naming my favorite varieties of this delicious fruit; and in doing so, shall name them in their order of preference.

1. *Green Prolific.* — All large, pale red, good flavor, splendid foliage, enormously productive.

2. *Wilson's Albany* — The most productive of all. The best market berry grown.

3. *Charles Downing.* — All large, fine flavor, productive, beautiful in shape and color.

4. *Downer's Prolific.* — The earliest of all, prolific, excellent in flavor and size.

5. *Kentucky.* — Very late, coming on after the general crops of others are gone; very large, hardy, and productive. The most promising late variety I have ever tested. It is destined, I think, to win golden opinions, and to fill the vacuum between strawberries and raspberries. If planted on a north hill-side and mulched deeply, if grown in stools or matted rows, it will hang loaded with fine fruit when the earlier raspberries come in.

6. *French's Seedling.* — In color, resembles the Green Prolific. Better flavor, however. I esteem it highly. It is early and prolific.

7. *Peak's Emperor.* — A perfect giant in size, very prolific, and long in bearing. Some claim that it is identical with the Agriculturist, but I know this is not the fact.

The above varieties will give any one a splendid succession of choice fruit.

Stanford, Ky.

DWARF PEARS. — I.

Some of our readers having asked for information concerning Dwarf Pears, we propose to give a few short articles on the subject.

First, What is a dwarf pear tree? The term has been applied to any tree, whether on pear or quince stock, trained low, and kept by pruning to a small size, and it has also been improperly applied to trees worked on quince stock, but trained with high stems before branching. By a dwarf pear tree, we mean one grafted on the quince root, branched low, trained in pyramidal or bush form, and not allowed to attain a large size.

The great advantage of dwarf pear trees is the comparative earliness with which they come into bearing. Life is short, and six, eight, ten, or even fifteen years is a good while to wait for the fruiting of a standard pear tree. But the dwarf will give a generous return in three or four years, and added to this is the ease with which, from its smaller size, it may be managed, and a greater variety of fruit may be secured in a small garden. Notwithstanding these advantages, however, there has been much discussion as to the expediency of growing pears as dwarfs; but whenever we get to the bottom of the objections brought against it, we find that they arise from some fault in the methods pursued. No pear tree will thrive long if left to take care of itself, and with dwarf trees the case is stronger than with standards. Whether planted in the garden or the orchard, they must have garden culture, and he who cannot give them this had better not plant them, either on a large or a small scale.

Another reason which has caused dwarf trees to be condemned has been, that they were worked on stocks of unfit varieties. The Angers quince is the only one that should ever be used as a stock for the pear. It is of stronger growth than any other variety, with smooth bark, and in a good soil makes shoots six feet long in a season.

Another cause of prejudice against dwarfs has been, that they have not been planted deep enough. The office of the quince is that of a root and not of a stock, and it should be invariably wholly buried in the ground. It has been advised to plant with the quince three inches below the surface, but we think one inch quite sufficient. It will protect from the borer, which attacks the quince and not the pear, just as well as three inches, and avoids burying the roots away from the warmth and air. We would prefer trees budded as low as possible;

for although trees worked from three to eight inches high will throw out roots from every part of the quince when it is buried below the surface, yet the lower roots would be too deep for their highest health, especially in soils at all cold or wet.

The root of the quince being tenderer than that of the pear, requires special protection in winter, especially where the ground is liable to freeze hard when not covered by snow. A good covering of litter of any kind, or coarse, strawy manure, is needed, and the latter will afford not only protection but food to the trees. We would remove this covering as soon as it could be safely done in spring, to allow the ground to receive the warmth of the sun, for nothing can be more injurious to a tree, or any other plant, than to stand long with its roots in a soil whose temperature is much below that of the air. The buds will certainly be excited into growth, and will make a draft on the roots for a supply of sap, which the latter will be unable to afford.

As soon as the ground is in condition to work, a dressing of good manure or compost should be forked in lightly around it, more or less in quantity as the condition of the soil may require. If covered with manure during winter, of course less will be needed than if little has been used. Before the droughts of summer begin the covering should be replaced, to serve as a mulch during the hot weather; and for this purpose we would prefer litter to manure, which might have the effect to excite a late growth in autumn, thus rendering the tree more liable to injury during the succeeding winter.

CANNA BIHORELLI.

By David M. Balch, Salem, Mass.

Canna Bihorelli, as is well known, differs from most other Cannas, in its habit of flowering freely; the stem branching repeatedly above the uppermost leaf, and producing clusters of buds in long succession. In favorable conditions, the floriferous capabilities of this variety seem almost unlimited. About the middle of October last, I lifted a couple of plants with several shoots, most of which had flowered through the autumn, but two or three were half grown, and planted out in the border of a warm green-house. To my surprise these have gone on forming fresh clusters of buds and flowers, without cessation up to the present time. No new shoots have appeared from the stool, but the old flowering stems have divided and subdivided in the most curious manner.

During the shortest days, when the plants, being in a bad position, got very little direct sunlight, most of the buds dropped half opened; but for a month past they have opened fully, and the flowers seem more permanent than in open culture. To-day, February 18, I counted twenty-three blossoms fully opened. There are yet no signs of cessation; the coming summer may possibly find these plants still blooming from stems a year old. *C. Rendatleri*, treated in the same way, refused to bloom, but sent up a dozen new shoots, some of which are now nearly five feet high, and forming flower buds: the old flowering stems, instead of dividing like *Bihorelli*, withered, and were cut away early in the winter. This variety is very ornamental in foliage, and all flowers are of the largest size. *C. Bihorelli* grows about two and a half feet high, with plain foliage and bright-red flowers, pretty large in size. A plant with half a dozen stems, in a large pot or tub, or planted out, with full exposure to sun and light, slight bottom heat, and a night temperature from 55° to 60°, will bloom all winter, yielding hundreds of florets. *C. Rendatleri* is also well worth growing under glass for its graceful habit and fine broad foliage.

MORE ABOUT HEATING GREEN-HOUSES.

I OBSERVE, in the January number of the Journal, an article on "Heating Green-houses," by Mr. Strong. While so large a number of glass structures are being every season erected in this country, perhaps you will not consider a few remarks by a reader, on the same subject, out of place.

In the first place, I think a great deal too much fuss is made about the method of heating glass-houses, and have at present seen nothing to equal a good flue for small solitary houses. To suppose it possible to confine *all* the heat from fuel consumed, would be an error. A certain portion must ever escape; how large a portion, depends, as a rule, upon the person in charge, very much more than upon the system adopted. Having had various systems of heating under management, I do not make this assertion theoretically. I am also free to confess that I have not yet seen a combination of flue and hot water satisfactory when used for forcing. The Polmaise method of heating originated with a Mr. Murray, of Polmaise, Scotland, as most of your readers are doubtless aware, and was the result of peculiar necessity. At the time of its introduction it caused a great furor among novelty seekers, but

was, in a very short time, estimated at its proper value by practical men. Modifications of the above method have, from time to time, been introduced, but "wouldn't take."

Heating by heated air, collected in a chamber round the furnace, called by Mr. Beaton "Kid's System," the main features of which are, a *very secure fireplace*, a damper in the chimney, an opening from the chamber into the air-flue which goes into the house, and means for admitting the external air into the chamber at pleasure, will, I have no doubt answer admirably for small houses. But where much is to be done, nothing that I have yet seen equals hot water.

The simplest form of heating with which I am acquainted, is with brick stoves, as done by Mr. Rivers, of Sawbridgeworth, England. The best example of this method that I have yet met with, is at Messrs. Lanes', Berkhampstead, England, where a house some eighty or ninety feet long is heated, and pretty well forced, too, with a brick stove placed at one end. But I would add, the formation of the house is well adapted for this method of heating. For merely keeping out frost, a brick stove, with an evaporating pan, answers every purpose, equal to the most expensive system. Mr. Strong says, "with our most popular boilers the smoke flue continues to be quite hot when the direct draft is on." True, but unless a little town of hot-houses is to be heated from one boiler, it is quite unnecessary to keep on full draft after a fire once gets burnt clear. The damper over the furnace should then be nearly shut, and a very small hole in the ash-pit door is sufficient to keep up perfect combustion; that is, where an apparatus is correctly put up.

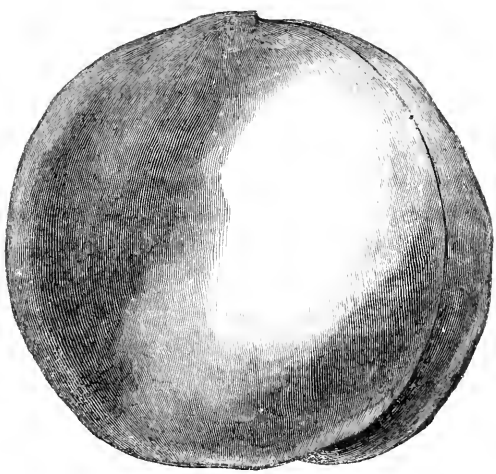
At one place we had three boilers at work; one, the common saddle, another, a saddle with tubular fire-bars, and one a conical. Of the three, all things considered, we preferred the common saddle-back. I may state, as showing how unnecessary it is to allow a large quantity of heat to escape up the chimney, that we had a cork stopping a hole in the chimney, about three feet above the damper, for one entire winter; and although we had in work forcing house, green-house, and pits, the end of the cork was scarcely charred.

In so far as covering the boiler etc., it is usually placed somewhere where the heat is needed. If covered with brick, the heat absorbed must be given out again, no matter how slowly; if covered with a steel plate, it would be soon hot, and just as soon cold. It would seem that a man of long practical experience can succeed with either method, but for the amateur, matters need simplifying, and perhaps the simplest form is the flue; but a very great deal may be done with an ordinary stove.

BALTIMORE, MARYLAND. *N. F. F.*

SOUTHWICK'S LATE PEACH.

This is an accidental seedling, which sprang up on the grounds of T. T. Southwick, Dansville, N. Y., and has fruited three seasons. The first two seasons the fruit was fully one third larger than it was last year, owing to a large crop and extreme heat. Our description and engraving are from a specimen of last year. The flowers are so small and colorless that the tree would hardly be noticed to be in bloom.



Southwick's Late Peach.

Fruit large, roundish, a little depressed at the summit, suture quite distinct, mamelon small, and sunken nearly to a level with the parts around. Skin yellowish white, sprinkled with minute red dots in the shade, and streaked and clouded with red towards the sun. Flesh white, parting very freely from the stone, which comes out dry, the cavity appearing larger than the stone. Very juicy and melting, with a fine, delicate flavor. Stone very small. Last year this variety ripened about September 22; the season before about ten days later. It resembles that fine old peach, the Late Admirable.

THE GARDENS OF THE CHESAPEAKE.

By William C. Lodge, Claymont, Del.

Standing upon one of the low sand-hills that skirt the Chesapeake, in the County of Somerset, Maryland, we perceive on our right a number of small islands, stretching, like a string of beads, away up the bay, until lost to sight in the distance. These islands and the eastern shore form a bay extending nearly sixty miles in length, and twenty miles in extreme width, known as Tangier's Sound, famous for its abundance of wild game and its fine fish and oysters. It has also recently become famous for the variety and excellence of the fruits and vegetables cultivated on the islands.

The waters of the sound are, comparatively, shallow, and are so sheltered as to be rarely much disturbed by the stormy winds that frequently stir up the bay proper into waves almost as boisterous as those of the ocean. Hence the bottoms afford the most favorable breeding-grounds for oysters and clams, while the islands enjoy a temperature free from the extremes of heat and cold common to the same latitude in the interior. The more delicate plants, that generally require a more southern latitude, here flourish luxuriantly.

Neither frosts nor summer heats greatly interfere with horticultural operations, and, in consequence, the season is lengthened so as to bring to perfection the more tardy fruits. The salt atmosphere, too, is destructive to such insects as render fruit growing in other localities a precarious business. The borer, curculio, and apple-moth are, as yet, practically unknown, and while the fruits are not affected in their growth and ripening, the trees grow well, and attain an age much greater than elsewhere in the Middle States. The peach here bears annual crops for forty and fifty years, and the limit to the age of the tree is unknown. Plums, nectarines, apricots, quinces, and figs find a congenial soil and climate, and bear large crops of perfect fruit. Melons and sweet potatoes attain equal perfection, while vegetables which delight in a taste of salt, such as celery, asparagus, and cabbages, grow to great size, and are particularly sweet and tender. For peanuts the soil is admirably suited, and large crops are raised.

In a small peach orchard we noticed a fair crop of fruit, while the intervals between the trees were planted in corn, with melons in the alternate hills. The crop of each appeared about as good as though

the ground was exclusively devoted to the particular fruit or grain. The owner estimated the products in money as follows: 400 baskets of peaches, $250; 40 bushels corn, $30; 500 melons, $50. — making an aggregate of $330 per acre. The manure (sea-moss) had cost him $8 per acre in six years for carting and spreading, while he had cultivated the ground chiefly with his own hands and a single horse, when not employed with his business of oystering.

We visited a small fig orchard, the third year in bearing, and found on the trees from half a bushel to a bushel of fruit, while much had fallen, and remained ungathered. Fig raising is said to be less profitable than peach growing, where a market can easily be reached, as the figs require care in preparation, and boxes for packing are not readily obtained.

Experiments in dwarfs, especially pears, and in grape vines, were in all cases satisfactory. Standard pears were not much planted, but the fruit of the dwarfs was very large, and perfect in color and flavor, excelling in the latter respects all the California fruit of that kind we have yet seen. The long season, the almost uninterrupted sunshine, and the light character of the soil, that reflects the sun-heat, form a combination of causes all tending to give high color and exquisite flavor to the fruit. Few improved grapes are planted. The fox grows well, but does not appear to grow so vigorously as in our low, rich, clay soils. Although we saw a few wild grape vines climbing over the highest trees, we remarked, as a general rule, that the growth of the vine was comparatively slow, while the fruit was plentiful, large, and perfectly colored. The vine comes early into bearing, and the fruit is so matured in all its wine essentials as to make excellent wine without the addition of either sugar or brandy.

The sea-moss, which is thrown on the beach in large quantities in certain seasons, supplies all the fertilizing properties needed by the vegetation of the islands. In a comparison with the best stable manures, it has been found to be equally beneficial for most crops, and more durable. It is gathered by all, without charge, and is often purchased by farmers from the main-land, at about five cents the cart-load, and conveyed up the rivers in scows adapted to the purpose.

With all the natural advantages of climate and soil, and the freedom from injurious insects, together with the abundance of fertilizing material so cheaply obtained, the want of regular communication with the great markets has heretofore been a bar to the extensive cultivation of the more perishable fruits and vegetables. The Baltimore and Washington markets are principally supplied with melons and sweet potatoes,

and in part with peaches, plums, and apricots from these islands, and the produce is generally carried in *pungies* — small sail-boats, peculiar to the Chesapeake. The inhabitants, with few exceptions, follow oyster and clam fishing as a business, and only devote their attention to fruit and vegetables during the four months of the year, beginning with May, when the shell-fish are not in a condition for use.

To illustrate the capacity of the islands, we will mention that on one containing less than three hundred acres exists a population of one hundred and fifty-eight souls. The island is divided into about thirty farms, of one eighth of an acre to ten acres each, which are worth, at an average valuation, three hundred dollars per acre — a swamp and bit of pine wood inclusive. The most valuable land, however, is that on the shore, covered by water, and suitable for oyster planting. This "real estate" is valued at one thousand dollars and upwards per acre.

All the families on this island appeared to be in comfortable circumstances, and several were considered wealthy, all having obtained their means chiefly from the products of the island and the surrounding waters.

It is no prophecy to say that in a short period these islands will be the gardens from which the markets of Philadelphia and New York will be supplied with the finest vegetables and best fruits. The regular steamers that trade between the southern ports and New York now touch at Cherrystone for freights of oysters, and such vegetables and fruits as the rude cultivation may supply. Intelligent labor only is needed in order to render them the most productive and profitable gardens in America.

Fine Orchids. — We take great pleasure in an occasional visit to the grounds of Gardiner G. Hubbard, Esq., in Cambridge, where, under the skilful management of our correspondent, John G. Barker, is grown the largest collection of those curious and beautiful plants, the orchids, to be found in this part of the country. A few days ago Mr. Barker invited us to see a remarkably fine specimen of *Bletia Tankervilliæ*, which had produced nearly a hundred and fifty flowers. There were on it ten spikes of flowers, some of them more than three feet high, and the chestnut-brown color of the inside of the petals contrasted with the perfect white of their outsides, and the fine white nectarium, shaded and streaked with crimson, give the flower a striking and beautiful appearance. A young plant of *Dendrobium nobile* was also in flower. Its petals of delicate pink or flesh color, darker at the tips, and lip of straw color, with a rich purple centre, and shaded with pink around the edge, enabled us to form some idea of the magnificence of the plant mentioned in our last number.

A plant of *Oncidium cornigerum*, with ten of its gracefully drooping spikes, covered with small yellow flowers, spotted with rich brown, was nearly in full bloom. Besides these, we may mention *Oncidium amictum*, with flowers resembling *O. cornigerum*, but much larger, *Lælia anceps*, with petals of beautiful lilac and purple lip, and though last not least, a fine plant of *Cattleya Mossiæ*, which we saw last summer. This is one of the most magnificent of all orchidaceous plants, with very large flowers, having purple petals, and the inside of the lip golden yellow, with blotches of deep crimson, and possessing a most powerful fragrance. We might enumerate many more of these singular plants had we time and space ; but we hope to give what will be much better, — a series of practical articles on the cultivation of orchids from Mr. Barker, which will be of much interest and value to all lovers of these plants.

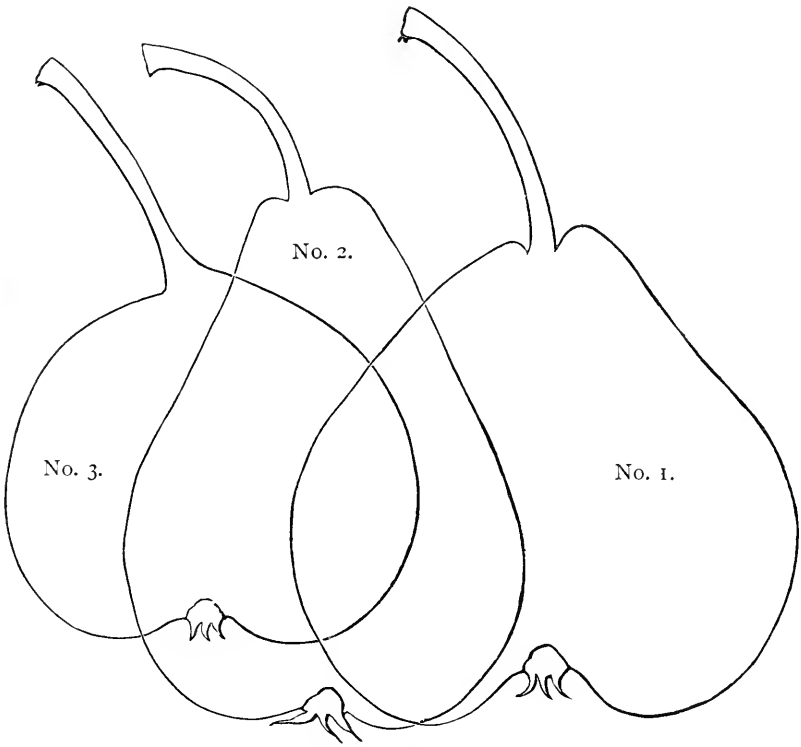
KEEPING APPLES. — We are informed by Mr. Charles F. Curtis, of the firm of Curtis & Co., one of the largest dealers in apples in Boston, that he finds a cellar in the city, in a narrow street among high buildings, preferable to any other place for keeping apples. The sun only strikes the attic windows ; and when once cooled in winter, it will continue so cool as to keep the apples longer than in any other place. The cellar is opened in cool, dry weather in winter, and, when the apples are in barrels, may be kept at a temperature of two degrees below freezing without injury to the fruit. A cellar so damp as not to permit the barrels to shrink and open the joints is better than one too dry. When a warm, damp spell is anticipated, a sufficient supply is taken from the cellar, which must be immediately closed, and not opened until the weather is again cool and dry. The cellar is specially adapted to Russets. Other varieties are found to keep best in stores above ground, in locations similar to those described, the same precautions being taken to keep the temperature uniformly cool, and the air dry. So important is this deemed, that, when the weather threatens to become warm during the night, a man is kept at the store all night to close it when it changes. Apples should never be placed in the cellar or winter store until thoroughly cooled, after being warmed by the mild days of Indian summer. Mr. Curtis handles from ten to twenty-five thousand barrels of apples yearly, and, with these precautions, is able to keep fruit grown in Western New York a month later than the same fruit can be kept in New York city or Philadelphia, to both which places he ships apples in spring.

CALIFORNIA WINE AND SILK. — We copy elsewhere from the Horticulturist an estimate of the yield of wine in the whole State of California at 5,000,000 gallons. Mr. Charles F. Reed, President of the State Agricultural Society, in his address at the opening of the State Fair, says, "Our wine product this year will probably exceed 20,000,000 gallons." He estimates the number of mulberry trees now in the state at 2,500,000, which will be greatly augmented next winter. During the past year a silk manufacturing company has been organized in San Francisco, and buildings for the factory are nearly completed.

HALE'S PAPER SHELL is a most superior variety of the shell-bark hickory, which originated near Ridgewood, N. J. The nuts are large, varying from an inch to an inch and a quarter long, and about the same in width. Shell thin, and, instead of the regular corrugations running from base to point, as usual in varieties of this species, the entire surface appears to be broken up into small depressions, which gives it a wavy appearance somewhat similar to the English walnut. The Hale's is certainly one of the most distinct and valuable sorts that we have ever seen. There is one seedling of the Hale's, standing near the original tree, which is now thirty years old ; but the nuts are quite distinct from those borne by the parent tree ; and this fact shows that the only certain way of perpetuating distinct varieties of hickory nuts will be in the usual mode adopted with fruit trees. *Rural New Yorker.*

BULBS grown in water are greatly improved by the addition of a few drops of aqua ammonia to the water each time it is changed.

Is there a Beurre Spence?—Some years since there was much said and written about the Beurré Spence, some believing that it was one variety, and some another. Some thought that it was Flemish Beauty, and I believe that pomologists generally settled down to this opinion; but those that I received for Beurré Spence have proved different, viz., one received from Ad. Papeleu, of Belgium, about the year 1854, is of medium size, oblate pyriform in shape, of pale yellow color, considerably netted and patched with russet, especially around the stem and basin; stalk long, curved, inserted in a small cavity; basin broad, deep,



No. 1. Beurre Spence of Papeleu. No. 2. Beurre Spence of Eaton. No. 3. Beurre Spence of Rivers.

uneven; flesh white, a little coarse, juicy, half melting, sweet, slightly aromatic; quality good to very good. Another from John B. Eaton, of Buffalo, about the same time, and which he imported, but from whom I have forgotten. This is oblong pyriform, slightly obtuse; skin pale yellow, partially netted and patched with russet, and a little brownish where exposed to the sun; stalk rather long, slender, curved, inserted in a small cavity; calyx large and open; basin small, regular, russeted; flesh yellowish, half fine, moderately juicy, buttery, sweet, with a slight musky flavor; quality good, sometimes rots at the core. A third one was received from Thomas Rivers, of England, which is of medium or small

size, roundish oblate; skin greenish yellow, often shaded with brownish red in the sun, and slight nettings of russet; stalk long, inclined, inserted in a slight depression by a lip; calyx small, open; basin rather small; flesh whitish, fine, juicy, melting, sweet, slightly vinous; quality good to very good. This is much like Beurré Beaumont, and may prove that variety. *Charles Downing.*

[We have long entertained the opinion which Mr. Downing mentions as held by the majority of pomologists, that the pear which Van Mons so highly extolled under the name of the Beurré Spence, was the Flemish Beauty. But we print these descriptions and outlines in the hope of throwing some light on the subject, and perhaps of ascertaining the true names of these pears, since it is evident that they cannot *all* be Beurré Spence. — ED.]

THE DUCHESS OF BORDEAUX PEAR was exhibited by Mr. Henry Vandine, at the Massachusetts Horticultural Society's room, on the seventh day of January. In external appearance it so strongly resembles the Catillac, that several good judges were quite sure it was that variety; but the difference was immediately perceived on cutting it, as though not melting, it approached that texture much more nearly than the Catillac ever does, being fine-grained and tender. It is of large size and handsome appearance, and altogether gives promise of becoming a valuable, late keeping variety.

HORTICULTURAL PROFESSORSHIP. — We are glad to see that the appointment of our correspondent, Francis Parkman, Esq., as Professor of Horticulture in the Bussey Agricultural School connected with Harvard University, has been confirmed by the overseers. The duties of this professorship will so far occupy Mr. Parkman's time, that he will be under the necessity of relinquishing his nursery business.

AMERICAN POTATOES IN ENGLAND. — The English journals generally condemn the new American varieties of potatoes; but the Rural New Yorker, of April 1, says, "Within the past few days one of our New York seedsmen has received orders for twelve tons of Early Rose, and we presume others have been drawn on for the same variety.

AID TO FRENCH FARMERS. — The Commissioner of Agriculture has issued a circular to the farmers of the country, in coöperation with the relief committee of the New York Chamber of Commerce, inviting contributions of seed for the French peasants, whose farms, gardens, and vineyards have been destroyed, and who have neither food to eat, nor seed to plant. A similar movement has been made in England, and over $2,700,000 has been raised.

STRAWBERRIES AT NORFOLK, VA., are grown on an extensive scale. A Mr. Anderson has fifty acres, and is planting as much more, besides a large patch in the country. He expects to employ from six hundred to eight hundred pickers. He is the largest cultivator, but there are about a hundred others whose operations are nearly as extensive.

LARGE PREMIUM FOR FRUITS. — The Pennsylvania Horticultural Society, incited by the success which attended their exhibition in connection with the meeting of the American Pomological Society in 1869, for which they made such ample provision, are now making extraordinary exertions for their annual exhibition in September next, with the purpose of giving it a national character, by offering premiums designed to draw forth contributions of fruit from all parts of the country. With this view they have solicited individuals to provide funds for special objects, and among others the Hon. Marshall P. Wilder, President of the American Pomological Society, has been invited to repeat his lecture on "California and its resources," for the benefit of the Pennsylvania Horticultural Society, and has consented to do so on the 13th of April. From the anticipated proceeds of this lecture, the society have already offered one premium of "one hundred dollars for the best collection of fruits, from any state, society, or individual, comprising Apples, Pears, Peaches, Plums, and Grapes, three specimens of each variety to be shown at the annual exhibition, September 12, 1871."

THE CURRANT WORM. — We are informed by Dr. E. Worcester, of Waltham, Mass., that the currant worm, so destructive to a favorite fruit, may be fully and almost immediately destroyed by the use of *carbolate of lime*. The doctor tried the powder in many instances during the past summer, and found that while it was fully as effective as hellebore, it was less disagreeable, less costly, and perfectly safe. The method of using it is to sprinkle it over the vines as soon as the worm makes its appearance, bringing it well in contact with the leaves, and soon the insect is destroyed. It will need but two or three applications, and the work is done. In this way, for a few cents, large quantities of currant bushes may be saved, and the fruit allowed to mature, and no danger whatever incurred. Neither the foliage nor the fruit is in any way injured by the carbolate of lime.

Journal of Chemistry.

[A friend who tried carbolate of lime last season, tells us that he found it quite effectual as long as the worms were young, but not after they had attained their full growth, while the hellebore seemed to be certainly fatal in all cases. He found that it was not necessary for the hellebore to come in contact with the worms, but when some was placed on the upper surface of a leaf, it not only caused the worms on the under side to fall off, but *killed* them. Still, we should prefer to use the carbolate of lime, and we advise our readers to destroy all the worms with it before they get large. — ED.]

THE BEST POTATOES. — Dr. F. M. Hexamer, in the American Agricultural Annual, recommends as the best six varieties of 1870, Early Rose, Peerless, Lapstone Kidney, Excelsior, Peachblow, and Gleason. They are arranged in the order of their ripening.

THE IONA GRAPE AS A KEEPER. — The editor of the Grape Culturist acknowledges the receipt of a box of Iona grapes, sent him on the 23d of February, by "H. E. B.," of South Haven, Mich., which were remarkably fresh and fine, and greatly relished.

Setting out Strawberries. — Strawberries set out early in spring, or as soon as they first begin to grow, are more likely to succeed, with less labor, than at any other time of year. Some varieties will bear a moderate crop the same year. The best plants, as every gardener knows, are the young, well-rooted runners of the previous autumn. Do not *pull up* the plants, but lift them with a spade, and then gently shake off the soil. Cut off all the older and dead leaves, and trim off the roots about two and a half inches long. For common field culture, no special pains need be taken to spread the roots ; but in gardens, where the best results are desired, a hole should be made six or seven inches in diameter, and two or three inches deep, with a handful or mound of earth in the centre. Then having trimmed the roots as before, spread them out, and set them like a saddle on the mound of earth in the hole, the roots extending like an umbrella. Cover with fine earth, and the planting is completed. By experimenting both ways, we find that plants set as last described not only live with less failures, but their growth for a few weeks is nearly double. After some months there is less difference. *Country Gentleman.*

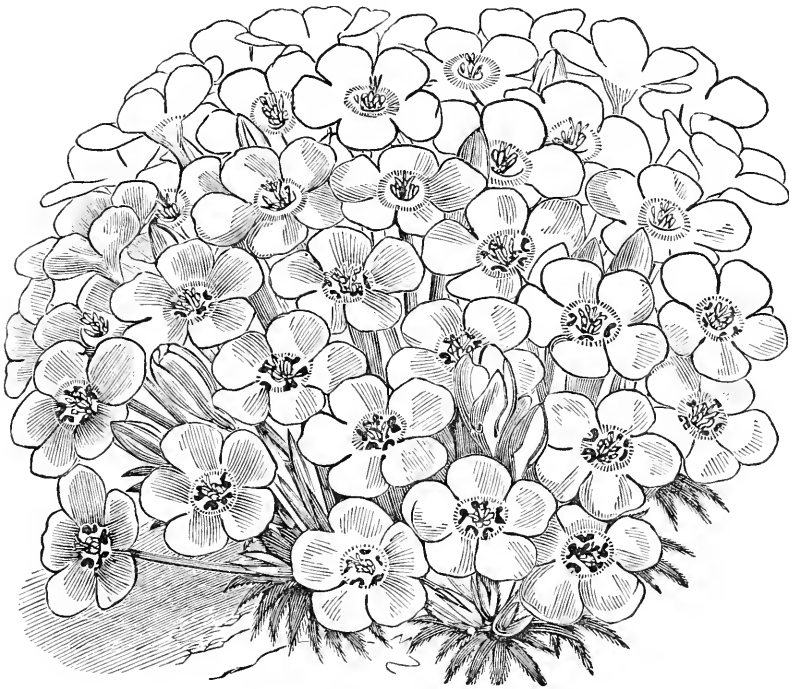
Bedding Plants. — The Galesburg Horticultural Society, at their annual meeting, adopted the following list, which is arranged in accordance with the merits of the plants as bedders : Zonale Geraniums, double and single, Verbenas, Monthly Roses, Coleus, Pansies, Petunias, Carnations, Bouvardias, Feverfew, double, Salvia, scarlet, Abutilon Thompsoni, Lantanas, Fuchsias (for partial shade), Cuphea Platycentra, Vinca, Achyranthes, Heliotropes, Scented Geraniums, Aloysia citriodora (lemon verbena), Centaurea.

The Semper Apple is a new variety originated by Dr. E. Ware Sylvester, of Lyons. The name which is Latin for "always" is given on account of its remarkable keeping qualities. In a cool cellar it may be kept one, two, or three years. It is of medium size, roundish-oblate conical ; color pale yellow, bronzed, with dull red in the sun ; flesh yellowish, crisp, tender, mild subacid, moderately juicy, not particularly rich, but good. *F. R. Elliot, in Rural New Yorker.*

Keeping Pears. — A fine exhibition of pears was made January 21, before the Massachusetts Horticultural Society, by J. V. Wellington, of Cambridge. The varieties were Glout Morceau, Beurré d'Aremberg, Winter Nelis, Lawrence, Beurré Langlier, Duchesse d'Angouleme, Sieulle, and Easter Beurré, all excellent specimens, particularly the first three kinds. They had been kept in the Massachusetts Fruit Preserving Company's house, and having just been taken from it, were not sufficiently ripe to eat ; but a few of the Winter Nelis and Lawrence, which we kept a short time, ripened very well. This house, which was built on Professor Nyce's patent, has lately been operated simply as an ice-house, without any attempt to produce an atmosphere of carbonic acid gas, and the pears above mentioned had no other preservative than the cool air. The house has since been sold, to be used for other purposes, and we believe that most of the others built on this system had previously been discontinued. The principle is undoubtedly correct, but whether from lack of care or of skill in the application, or from whatever cause, it has failed of practical success.

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

GILIA (§ LEPTOSIPHON) MICRANTHA. — Under the name of *Leptosiphon roseus*, plants of this very beautiful but seemingly most variable annual, were exhibited last season before the Royal Horticultural Society, by Mr. Thompson, of Ipswich. The same plant was figured in the Botanical Magazine as *Leptosiphon parviflorus var. rosaceus*, while Dr. Gray, in a recent monograph of the group, has classed the plant under the name above given. In truth, the plant varies so extremely, that it is difficult to assign its exact position and name. The plant is a



GILIA MICRANTHA.

low-growing annual, more or less clothed with longish, weak hair; the leaves are 5–7-parted, with linear acute divisions. The flowers vary from a very deep to a very pale rose red. They are produced in great abundance, as seen in our illustration, and have a long, slender tube, about an inch and a half in length, supporting a flat five-lobed limb, whose segments are not more than a fifth of the length of the tube. The plant is a native of California, and may be grown in this country as an annual. Like its congeners, it will probably do best in rather a damp climate. It is certainly one of the handsomest of its class.

Gardener's Chronicle.

The Bombardment of Paris. — The special correspondent of the London Times gives the following account of the effects of the bombardment on the Jardin des Plantes: "No fewer than eighty-three shells had fallen within this comparatively limited area. On the nights of January 8 and 9, four shells fell into the glass houses, and shattered the greater part of them to atoms. A heap of glass fragments lying hard by testified to the destruction; but the effect of the shells was actually to pulverize the glass, so that it fell almost like dust over the gardens. The consequence was that nearly the whole of this most rare and valuable collection was exposed to one of the coldest nights of the year, and whole families of plants were killed by the frost. Some of the plants suffered the most singular effects from the concussion; the fibres were stripped bare, and the bark peeled off in many instances. All the Orchids, all the Clusiaceæ, the Cyclantheæ, the Pandaneæ were completely destroyed, either by the shells themselves, or by the effects of the cold. The large palm-house was destroyed, and the tender tropical contents were exposed to that bitterly cold night; yet singularly enough, although they have suffered severely, not one has yet died. All through the whole of the fortnight during which these gardens were subjected to the rain of shells, M.M. Decaisne, Chevreuil, and Milne Edwards remained at their posts, unable to rest, and have since, at their own expense, repaired the damage done, trusting that whatever form of government France may choose, it will not repudiate its debts of honor. M. Decaisne is making out a list of his losses, a large proportion of which might possibly be supplied from Kew, while owners of private collections might also be glad to testify their sympathy and interest in the cause of science, by contributing whatever they may be able to spare, as soon as the amount and nature of the loss is ascertained."

A Miniature Oncid. — In the course of an agreeable tour round the Hale Farm Nursery, a few days ago, I discovered in one of the alpine houses there, a beautiful example of a rare plant, *Epimedium pinnatum elegans*, bearing a spike of elegant yellow flowers that reminds one instantly of the more fragile-habited of the oncidiums, and equal to any of them in beauty. The catalogue price of this plant is just sixpence, but the specimen I saw might have been worth half a crown. How many gardens shall I visit ere again meeting with such a gem as compared with gardens where oncids are grown, and represent immense expenditures of money and labor? A friend has just remarked that "these first-class hardy plants want writing up," and to that I have responded that a few second-class tender plants equally need writing down; but it is sufficient for us to point attention to things that are sure to commend themselves when seen, and leave less worthy objects to find their proper level in open competition before the eyes of the world. *S. H., in Gardener's Magazine.*

Fruit Prospect in England. — The Gardener's Magazine of March 25 says, "The promise of a good fruit crop is complete. The trees are everywhere bristling with plump flower buds, and in the southern counties the walls are grandly sheeted with the bloom of peaches and apricots. The lateness of the spring is particularly favorable to fruit, by lessening the risk of destruction by frost."

HYBRID PERPETUAL ROSE — LOUIS VAN HOUTTE. — It may give some idea of the difficulties attendant on the raising of new varieties of roses, to mention the fact that, although it is now some seven or eight years since Mons. Lacharme, of Lyons, raised what is to this day perhaps the best, and certainly, taking it all in all, the most favorite rose in cultivation, — Charles Lefebvre, — he has not since that time added any roses of first-rate merit to our lists. Prudence Bresson was a very extraordinary rose ; Thori is pretty ; Pitord bright ; but none of them are first-class roses. He has, however, we believe, in this rose, added to his well-earned reputation ; and Louis Van Houtte is a worthy companion to Charles Lefebvre, and probably the best rose of the year.

We cannot, perhaps, better describe it than by saying that it is the old Cabbage Rose, with the color of Charles Lefebvre ; indeed, it is said by its raiser to be of the same form as the rose *à centfeuilles*, for so the old favorite Cabbage Rose is called by the French. It has, moreover, the same delicious perfume as that rose — a perfume perhaps unequalled by any other in cultivation, while it fully deserves the name of Perpetual. We have it in our own garden ; and it is now (August 20) showing quite as numerous a crop of buds as it did in its first head of bloom in June ; and when we add to that, that it is of a very vigorous constitution, we think we have said sufficient to justify our statement that it is a first-class rose, and one that is sure to make its way into every collection, however select it may be. We have seen a good many of the new roses of the present season, but none of them have, in our opinion, equalled this very beautiful seedling of Mons. Lacharme's. *Floral Magazine.*

THE GOLDEN-TIPPED STONECROP. — The value of this fine variety of the common Stonecrop has been already pointed out ; yet I feel compelled, whilst the flower beds are being filled with their winter occupants, to call attention to it. A broad band in my rockery is just beginning to show its golden tips ; and in a few weeks hence it will, to use a figurative expression, be a sheet of gold. This rich golden hue will be retained until far into the spring, when it will change back to green, and in the summer will flower as freely as the normal form. Last winter the tips of the shoots were so bright, that people passing along the road in front of my house used to stop to inquire what plant it could be that flowered all the winter, although the rockery is only about twelve feet from the footpath. It is one of the most useful plants for edging flower beds during the winter season known ; and as it is so easily managed, it ought to be extensively employed for that purpose. Perhaps a hint to that effect at this moment will be useful.

Gardener's Magazine.

CENTAUREAS. — To propagate *Centaurea ragusina compacta* and *candidissima*, cut off the heads of your stock plants so near the points as just to cut into the solid part of the stem ; thus all the leaves will be removed, and the stools induced to break at nearly every eye from the naked stems ; place the stools on a shelf in the green-house, and by spring they will produce a quantity of side shoots, which, as soon as they are large enough, strike freely.

Gardener's Chronicle.

The Royal Vineyard Fig is described in the Florist and Pomologist as a new variety of sterling merit. In shape it resembles the Brown Turkey; but the warm reddish tinge of the Royal Vineyard is very distinct from the dull brown or chocolate hue of the Turkey. In flavor, also, the Royal Vineyard is infinitely superior. It is, in fact, one of the highest flavored figs in cultivation, and will succeed under the ordinary treatment required for the Brown Turkey, which is well known as one of the most easily cultivated and prolific of all figs.

Planting-out Heliotropes. — About twelve months ago, Mr. Tillery, of Welbeck, contributed to your columns a short but practical letter on the desirability of planting-out the heliotrope. Profiting by the hint, I last May planted the back wall of a peach-house, eighty feet long, with it. The plants during the summer grew vigorously, but produced very few flowers. The peach-house was started in the middle of January last, and I have now plants six feet high, covered with a perfect sheet of their sweet-scented blossoms, and which are the admiration of all who see them. I would advise every gardener who has a small place, to grow this gem of a plant. If we look at it in a business point of view, I am sure the flowers would command more money than the crop of peaches. I may add that, when the peaches were in bloom, the sight was such a one as must be seen to be appreciated. *R. Gilbert, in Gardener's Chronicle.*

Leaf Rake. — A new wheel hand rake, for raking leaves, is advertised in England. It can be easily worked by a woman or boy, and gathers six or seven times as much as the ordinary rake.

Inarching Vines. — The best time to inarch last year's canes to old vines, is as soon as the stock or old vines have shoots a few inches long, with leaves to attract the sap, and so prevent bleeding. The scions are also better of some growth. No union can take place until there is growth, as it is effected by the descending current or elaborated sap. *English Journal of Horticulture.*

The Scarlet and Zonal Race of Pelargoniums are, as Dr. Denny remarks, much in want of a distinctive name. In the face of the objections to the use of the name "Scarlet" for flowers of all hues, to "Zonal" for many which have no zones, and to "Geraniums," which would be robbing the true geraniums of their good name, it has been suggested that Sweet's name of *Ciconium* should be taken up for them. It was applied by him to this very group, which he describes as "a natural section which will most likely be hereafter divided from Pelargonium into a distinct genus," and is also used as a sectional name for the same group by modern botanists. No doubt it is the best distinctive term yet suggested, and the only difficulty lies in getting any unfamiliar name generally adopted. *Florist and Pomologist.*

Azaleas should be pruned as soon as flowering is over, and before growth recommences. Keep them in a mild, genial atmosphere, to induce them to break freely. *Gardener's Chronicle.*

THE ARTILLERY PLANT, *Pilea allitrichoides*, or Pistol plant, is a native of the West Indies, and a very elegant and interesting subject for stove and greenhouse culture. We have frequently used it to furnish indoor cases, for which purpose it must be grown to a good size in pots, and be plunged in the place it is to occupy, and it will continue to grow and bloom from May to October, in the temperature of a dwelling-room. The minute, fern-like leaves, and reddish pins'-head sort of blossoms, fit it well for association with fine-leaved plants. It is named the Artillery or Pistol plant, because, when sprinkled with water on a hot, sunny day, the flowers emit little puffs of pollen, like discharges of smoke from fire-arms. *Floral World.*

PLANTS FOR A RIBBON BORDER. — A border at Rockville, was planted as follows, and I thought it looked very effective: Line 1, Cerastium Biebersteini; 2, Pelargonium Golden Chain; 3, Iresine Herbstii; 4, Pelargonium Flower of Spring; 5, Purple King Verbena; 6, Pelargonium Rose Queen; 7, Centaurea candidissima; 8, Pelargonium Stella, with a tall backing. I was here again much pleased with several beds of Pelargonium Amy Hogg, the color of which in the mass was most charming. *English Journal of Horticulture.*

THE MYOSOTIS DISSITIFLORA. — I am pleased to observe that this beautiful early blooming Forget-me-not has found a footing in Ireland. It is, however, far from common with us yet, and nine tenths of the people who have gardens are entirely ignorant of the existence of this Myosotis. Once seen and grown it will not easily be forgotten, and must soon become a universal favorite. I find every winter that the smallest and most compact plants withstand severe weather far the best. Strong woody plants invariably suffer. The wisest plan is to get seed, and sow it during July, or the beginning of August; and then when the seedling plants are large enough to handle, prick them out on an open border, where they will get plenty of light and air, so as to prevent their being drawn. Small plants, that only just peer through the ground, will begin to develop their pretty flowers at each point early in March, and the blooming will continue for two or three months. When the soil is stiff and wet, or very severe frost prevails, it is certainly wisest to house the plants in frames during the dead of winter, and get them into their permanent homes about the end of February. A dozen or two of plants potted up in forty-eights, and put on an airy shelf, will soon be a mass of bloom, and will be most acceptable even in the finest conservatory. *Gardener's Record.*

PRUNING IVY. — In pruning ivy, it is proper to remove with the shears every leaf and shoot, so as to cut it close, and secure a close, even growth. All the leaves, whether with long or short stems, should be cut off. The leaves with short stalks are last year's late growth, and those with long stalks are partly last season's early growth, and partly the late growth of the previous year; but as a rule the long-stalked leaves are rendered so by their having to elongate to reach the light, in consequence of their being covered by the young growth. Ivy sheds its leaves about July. *English Journal of Horticulture.*

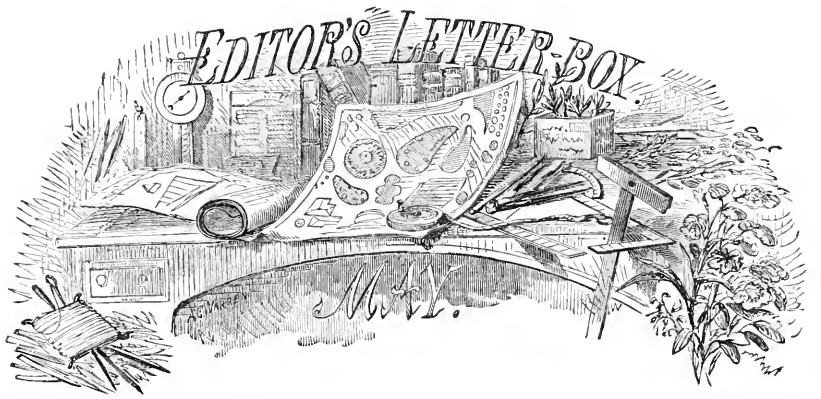
Root Growth without Top Growth. — Mr. Fish sends us an interesting illustration of the fact that vine roots will live and grow for a period of five or less years without any top growth at all: —

"In the specimens sent there are a dead root and a living, growing extremity. The living portion received nothing through or beyond the dead portion. Neither along the entire distance between the two — which, in the case of the specimen with the upper portion tied on to the under, was at least a yard — has a shoot or leaf of any kind been produced. The roots, nevertheless, were in active growth, with abundance of spongioles feeding apparently in the usual manner. The discovery of the large specimen sent was made in this wise. A set of old Muscat vines, which were prized on account of family associations, were transplanted into a new border, six years ago. It is my practice, at this season of the year, to remove the worn-out surface soil and replace it with new. This season the renewing process was carried deeper than usual. In removing the earth we came upon the largest root sent. It seemed in splendid condition, rooting away as one likes to see them do, but by the removal of the earth its main branch was laid bare; and my disappointment and astonishment were great when I found that it terminated in rottenness; and I believe that the connection must have been severed soon after the vines were transplanted. During the process of removal, several of the roots looked somewhat suspicious. Many were cut off, but all that seemed to have a chance of living were left. This is doubtless one that refused to profit by its chance of new life. On examining the rotten portion, you will, I think, come to the same conclusion, that it has been dead many years. [Yes.] But I have more positive evidence to offer on that head. Five years ago we resolved to renew another house of vines. The portion of the border next the house was taken out, the new soil introduced, and a brick wall built up between the new border and the old. A few days since part of this wall was removed, to see if further extension was necessary. It was not. But outside the wall plenty of old roots were found, and in full growth, like those sent. They were all unattached, and had made no attempt to form tops."

We do not remember to have heard of a precisely similar case before in vines, though every one must have observed how long the vitality lasts in the roots of trees left in the ground, and severed from the top. The fact is somewhat analogous to that of the subterranean tubers of some orchids, which increase and multiply below the ground for years without putting up a leaf. In the case of fir trees, the stumps of which are said occasionally to increase annually by the formation of woody rings, Goeppert has traced a junction or "anastomosis" between the roots of the stump and those of adjacent perfect trees. *Gardener's Chronicle.*

A New Fruit. — We have, in the *Macadamia ternifolia* of Moreton Bay, a new edible fruit. The plant is proteaceous, and an evergreen shrub, or rather tree, with ternately-whorled, oblong-lanceolate, spiny-margined, brexia-like leaves, and a racemose inflorescence. The fruit is a kind of drupe, with a fleshy exterior, encircling a hard shell like that of a walnut, within which is a sweet kernel, the flavor of which has been compared to that of almonds. Young plants have been recently exhibited from the Wellington Road Nursery.

Florist and Pomologist.



THE Editors of "Tilton's Journal of Horticulture" cordially invite all interested in the various branches of horticulture to send questions upon any subject on which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to inquiries in regard to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to horticulturists.

We would especially invite our friends to communicate any little items of experience for our "Notes and Gleanings," and also the results of experiments. Such items are always readable, and of general interest.

We must, however, request that no one will write to the contributors to our columns upon subjects communicated to the Magazine.

Anonymous communications cannot be noticed: we require the name and address of our correspondents as pledges of good faith.

Rejected communications will be returned when accompanied by the requisite number of stamps.

MRS. S. E. B., Clear Creek Station, Galveston Co., Texas. — Double varieties of gladiolus have been produced, but are not generally esteemed by florists.

We cannot assign a reason why your wall-flowers and Rocket-plants have failed to produce flowers, unless the soil is too rich. Try transplanting into a dryer and poorer soil.

The Richardia, or Calla, requires rest, which is given after the plants have bloomed, by turning the pot on the side and withholding water.

RUBUS. — If your raspberry seed is dry it will be of no use to sow it this spring, as it would lay in the ground all winter before coming up. The best way is to sow it either as soon as cleaned from the berries, or the next autumn in the open ground, or if the quantity is small, in a cold frame, or it may be mixed with sand, and kept through the winter, and sown early in spring.

T. F. — Rawles's Janet, Northern Spy, Rome Beauty, Hubbardston, and Water apples all blossom late, and are, therefore, adapted to locations subject to late spring frosts. Among pears, the Paradise d'Automne is eligible for the same reason, while the Beurré St. Nicholas, or Duchesse d'Orleans, which blooms very early, should be particularly avoided.

W——R, Troy, N. Y. — A green-house twelve feet long should be about the same in width — less would be incommodious, and more would present a disproportionate appearance. The back wall may be ten feet high, and the front three and a half, with sashes two feet high, and the wall below banked up for the sake of warmth. If circumstances should lead you to modify these dimensions, we would recommend that the slope of the roof should not be lessened. As to the inside arrangement, three feet would be a good width for the front shelf, and the walk may be two feet, or two and a half feet wide, leaving six and a half or seven feet for the stage, which should slope at a less angle than the roof, so as to give room for larger plants at the top, and the back shelves of the stage should, for the same reason, be wider than the front. The walk must be sunk, so as to give sufficient height to walk in.

H. R., Auburn, N. Y. — The true Crimson Celery is quite a distinct variety, though not crimson, but deep pink. It is solid, and of excellent quality.

HARRY, Scotland, Mass. — Every nurseryman has the Beurré d'Anjou for sale; if there is one who has not got it, he had better not call himself a nurseryman. The price will vary from fifty cents to five dollars, according to the size. You can get a tree large enough for general purposes for a dollar. The President Wilder strawberry is still for sale to subscribers and all others.

MRS. C. S., Sheffield, Mass. — You had better turn out your cotton plants into the open ground, but not until all danger of frost is over. In the mean time give them plenty of room, shifting into other pots if necessary, so that they may not be drawn up slender. Cotton flourishes best in a rich, alluvial soil, and we would advise you to choose a rich and moist, but at the same time a warm spot, to turn out the plants in. Give them plenty of moisture, but do not drown them.

There is no bean equal in quality to the Lima for succotash, or anything else. The Sieva, or Small Lima, resembles it, and is earlier, but not quite as good. Next in richness are the different varieties of running cranberry beans, of which the Horticultural or Speckled Cranberry is one of the best. Why do not you try the plan described in the note on "Forwarding Lima Beans," in our last number?

T. P., Cedar Rapids, Iowa. — We think the statement that "water-sprouts *never* bear fruit," should be taken with a little allowance. Such shoots are long jointed, soft, and watery, and at the farthest possible remove from the condition of a fruit-bearing spur, and so long as they remain in that state certainly will not bear fruit; but we see no reason why good solid wood, and finally fruit spurs, should not grow from them, though we should expect that grafts from them would be longer in forming fruit buds, than scions which already more nearly approached the condition of a fruit bud. We should choose scions from healthy trees, making moderately long jointed shoots, but not stinted, for these we should not expect to grow with sufficient vigor. We should try to steer between the two extremes of excessive wood growth and excessive fruit growth.

The Season in Illinois. — The month of March has been unusually mild, and the season is fully three weeks earlier than usual. There are some fears that a premature development of the fruit buds may lead to injury to the crop.

Princeton, March 27. *A. B.*

S. F. S. — Root cuttings are pieces of roots an inch or two long. Many trees and shrubs, difficult to propagate by cuttings of the top, or by seed, are easily increased by root cuttings, among which are the calycanthus, clethra, different species of *Prunus*, such as the dwarf double-flowering almond, many of the spiræas, the Japan quince, lilacs, acacias, bignonia, celastrus, ceanothus, etc., and of fruit-bearing shrubs, the raspberry and blackberry. All shrubs on whose roots dormant eyes can be seen, will grow from root cuttings, but it must not be concluded that such as do not show dormant eyes will not, for some, where the eyes cannot be perceived, may be propagated in this way. The cuttings may be prepared in the fall, and if hardy, they may be planted immediately. To save time, the roots may be taken up in autumn, and packed in boxes of earth, and the cuttings prepared during winter, when they may be repacked in the earth and planted in spring. Plant two or three inches deep in good soil. They grow more quickly and certainly with bottom heat, though this is not at all necessary.

Carroll, N. H. — Louise Bonne of Jersey and Flemish Beauty have been found to succeed well in New Hampshire. Bartlett is rather tender. As a general rule, varieties like the Seckel, which make a moderate growth of short jointed wood, will be found more hardy in the tree than luxuriant growers. The Fulton and Goodale, natives of Maine, would succeed with you.

T. A. R. E., Bluffton, Wells Co., Ind. — The Pleasant Valley Fruit and Wine Reporter is published at Hammondsport, N. Y.

Flowers and Fruits in Texas. — My garden is resplendent with roses, verbenas, petunias, Indian pinks, pansies, and other flowers. Solfaterre and Pink Cels Tea roses have each over three hundred blooms on a single bush. A few strawberries are ripe, and with a few warm days there will be plenty of dewberries. Yours, *S. E. B.*

Byerslea Home, March 31.

MR. EDITOR: — By your kindness I have received three numbers of your excellent Journal, in the April number of which I find an article on "Pruning," by George Jaques, Esq., which I know to be sound throughout.

I have been pruning all deciduous trees on or about the summer solstice, as nearly as practicable, for more than twenty years, and with the best success.

I also concur in opinion with him, that good oil paint is as good a protector to the wood of the amputated limb as we need. *J. W.*

BALTIMORE, April 3.

[We have seen lately in one of our exchanges a statement, that the liquid grafting-wax, described in our last number, had proved superior to paint for covering wounds in trees. The wounds healed more quickly. — ED.]

FRUIT PROSPECTS AT NORFOLK, VA. — The peach and pear blossoms have opened nearly together this season, the pear opening nine days earlier than last year. Hopes are entertained of a good crop. *G. F. B. L.*

March 23.

A. C. T., Nauvoo, Ill. — Some of the best Cannas for foliage are *annei*, *musæfolia*, *nigricans*, *maxima*, *zebrina*, *atro-nigricans*, and *gigantea*. For flowers, *bicolor* and *limbata*, and for both foliage and flowers *nepalensis*. An excellent article on *C. Bihorelli* and *Rendatleri*, is published in the present number.

The only Caladiums useful for bedding out, are *esculenta* and *bataviense*. For culture under glass, *argyrites*, *mirabile*, *chantini*, and *tricolor*, are among the best. On page 357 of our last volume, you will find the names of the varieties which took the first premiums at the Annual Exhibition of the Massachusetts Horticultural Society. They are all fine.

G. B., Baltimore, Md. — Hard wooded plants may easily be kept in a pot sunk about three feet in a well-drained soil, and covered with glazed sashes, and in very cold weather with straw, mats, or boards. Air should be given whenever the weather is mild. But for herbaceous plants you will need a house, and we doubt whether the "Green-house for a Short Purse" would answer at Baltimore without fire heat. A cheap and effectual way of warming a green-house, is by a stove, with a flue and chimney built of pipes, either cement or vitrified, such as are used for house draining. If wood or charcoal is used, the stove may be in the green-house; if coal containing sulphur is used, it must be in a separate apartment. If you have a hill-side, with a southern aspect, into which you can build your green-house, it will assist greatly in economizing fuel, and in any case the walls may be made double, and filled with tan or similar material, and banked on the outside with tan, so as to effect a great saving.

The pansy is a plant of a cool climate; and while the seed may be sown in a warm place, especially in autumn, the plants should be transplanted into a cool, moist spot, but not with too much shade.

JUNE.

ORCHID CULTURE. — I.

By John G. Barker, Cambridge, Mass.

In presenting to the readers of the Journal a series of short articles on the cultivation of Orchids, I shall endeavor to be as brief as possible, and without any further introduction than has already been given in the May number, I proceed at once to my task.

Until within a few years past the cultivation of Orchids has been but little known, partly from the supposed great cost of suitable structures to grow them in, and partly from the high cost of the plants themselves. And indeed at the present time there is not, to my knowledge, any large collection in this state, or even in New England; there are several small collections in this vicinity — one at the beautiful country-seat of R. M. Pratt, Esq., at Watertown, and another at the Cambridge Botanic Garden — the latter of which composed a part of the beautiful collection of plants of Edward S. Rand, Senior, Esq., and which were very successfully grown and exhibited by that gentleman at the exhibitions of the Massachusetts Horticultural Society. Then we find at Mr. Taft's, at Providence, R. I., a very choice collection indeed, the beauties of which it has been my privilege to admire on several occasions. No lover of flowers could look at these truly beautiful and in many cases gorgeous plants without a desire to possess some himself.

It will be my object, at this time, to show that no one need be alarmed at the expense of a suitable house. If the collection is at first small, any kind of a house will do, that is sufficiently heated, and, with care, will grow them until a larger one is needed.

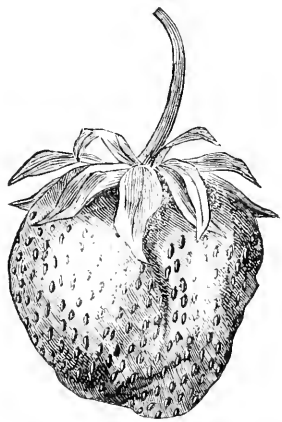
About five years ago we received our first lot of Orchids, and soon after that a second lot. We had no suitable house; but we had a small house, which was erected for bedding plants in spring, and lettuce in winter, and this was all we had to give to them. This house is about forty-five feet long by nine wide, with a partition in it, sixteen feet from the door, so that one end might be kept cooler than the other; it is heated by a common brick flue, running under the front bench the full length of the house; the furnace is also in the house, with the exception of the front part of it, which, in order to prevent gas and smoke coming in contact with the plants, should never be inside of a house. On the top of the furnace is built a cement tank, which is kept constantly filled with water, so as to insure a good degree of moisture in the house. Let me say here, however, that I do not *recommend* this mode of heating for an orchid house. This house is a lean-to and faces the south; it is sunk some three feet below the level of the ground, and is entered at the east end by descending three steps. On your left is a bench, two feet wide, extending the whole length of the house, and covered with one inch of sand, which is kept constantly moist; a space of an inch and a half should be left between the front wall and the bench, to let the hot air up against the glass, which is always the coldest at the lower part. Under this bench is the flue already spoken of; on your right, in the first or cool end, is a raised bed, three feet high from the walk, filled with sand, and on this sand the plants are placed. In the second part, or warm house, is another raised bed, one foot high from the walk, filled with suitable soil, and planted with ferns, which thrive splendidly in the heat of the orchid house; and over this bed, suspended from the roof, are hung the plants that grow in baskets and on blocks of wood, and it is shaded from the sun by curtains, made of unbleached cotton cloth, and drawn over the outside of the glass, and held on by rings sewed on the cloth, and fastened on to hooks. Ventilation is obtained by every other sash sliding from the top.

This house has proved very satisfactory, and our expectations have been more than realized. In it have been grown the plants exhibited by me at the exhibitions of the Massachusetts Horticultural Society during the past three years, which have spoken for themselves; and as to what degree I have succeeded, I leave those who have seen them to be the judges.

NEW STRAWBERRIES.

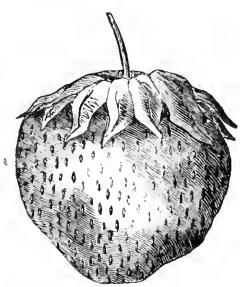
By J. M. Merrick, Walpole, Mass.

Haquin (Haquin). — Several years since I cultivated a spurious variety sent out under this name, which was absolutely worthless. Last year I fruited one which is probably the genuine kind, and which is very good for a foreign kind. The fruit is borne on tall, stiff fruit stalks, is large, obtusely conical, very bright colored. Rich, juicy, and pleasant. Something of the class of Triomphe de Gand. Does well in rich, sandy soil, not over-moist. A good and showy variety.



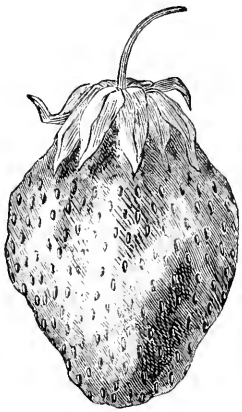
Haquin.

Leon de St. Laumer (Dupuy Jamin). — A strong-growing, vigorous variety; very handsome and upright, but, unfortunately, a poor bearer. Fruit large, conical, a little compressed, and pretty good. Grows well, and makes a great show in poor soil.



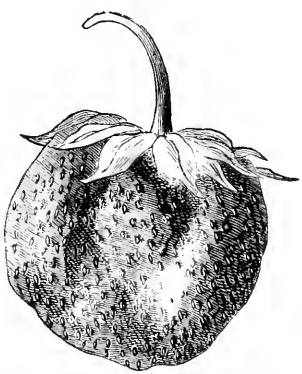
Leon de St. Laumer.

Banana (Willard). — I have not cultivated this new variety, and the description and figure are from specimens exhibited by the originator, Mr. J. D. Willard, of Hartford, Conn., before the Massachusetts Horticultural Society. Fruit large, conical, with a long neck; color light scarlet, neither color nor shape being good. The name is given from its flavor, which to us appeared to resemble the Hautbois. The fruit stems were very long, and judging by the appearance of the trusses, it is a productive variety. Rather soft even for an amateur berry.



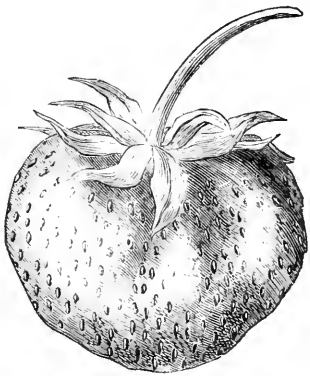
BANANA.

General Havelock (Filey). — Very large fruit, bright red; seeds prominent. Flesh reddish, sour, and moderately good. I fruited this variety one season. It is *not* the Cremont, as it is sometimes said to be.



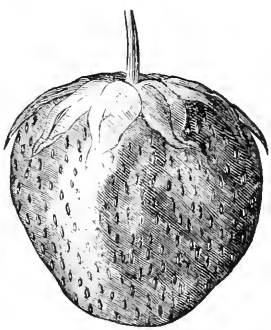
GENERAL HAVELOCK.

Eliza (Rivers). — An excellent berry, and a moderately good bearer. Leaves large, deep green, serrate. The fruit is light crimson, soft, rich, and delicious. I have grown the Eliza several seasons, and find it identical with the Rippowam, and possibly with the Boston Beauty.



ELIZA.

Premier. — Very large, bright red, handsome berry, with white flesh. I find the plant a strong, vigorous grower, and only a moderate bearer. Hardly worth cultivating.



PREMIER.

DWARF PEARS. — II.

A POINT of the greatest importance in cultivating dwarf pear trees is the selection of proper varieties. A failure to attend to it has caused much unjust condemnation of this class of trees. The number of varieties which can be recommended for general cultivation everywhere is limited, and the fact that many of those which succeed on the pear root are not at all adapted to the quince, reduces still further the list which we can advise to plant as dwarfs. There are, on the contrary, some which, when grown as dwarfs, succeed better than as standards, and foremost among these are the Duchesse d'Angoulême and the Louise Bonne of Jersey. The former of these two is *the* pear for dwarfs, succeeding throughout the country, and from its large size commanding the highest price in the markets. These are both autumn pears, though the Louise Bonne is so much earlier than the Duchess that they will not at all interfere with each other. For a late kind we recommend that almost perfect pear, the Beurré d'Anjou, and for market purposes we think it would be more profitable to stop here, than to add to the variety. But if a summer pear is wanted, plant Rostiezer. Where the White Doyenné still succeeds, it is impossible to have anything better. Vicar of Winkfield succeeds admirably as a dwarf, bears enormous crops, and when soil and climate are adapted, is of good quality. Urbaniste is one of the best of all pears on any stock; but on the quince, the long time which it takes to produce fruit on the pear is abridged one half or more, and it makes most beautiful pyramids without the slightest care in training. Beurré Superfin, Beurré Hardy, Belle Lucrative, Beurré Diel, Winter Nelis, Easter Beurré, Glout Morceau, Dearborn's Seedling, and Brandywine, are all fine pears, which have done well as dwarfs. But, as we said before, if we were planting for market, we should confine ourselves mainly to the first three or four named, and proceed cautiously with the others, until tested, wherever our locality might be.

Another most important point is to avoid over-cropping. All fruit trees are liable to injure themselves by overbearing at times, but the tendency of dwarf pears to make fruit buds is so great that they are especially liable to such injury. The remedy is thinning the fruit, and where fruit is so easily accessible as on dwarf pears, there is no excuse for neglecting this necessary operation; but the young cultivator is often

so charmed by the prospect of seeing his little trees hanging full of luscious pears, that he cannot make up his mind to take off from one half to nine tenths of the crop. Nevertheless, if he would not have them deficient in flavor, and more than that, if he would not have the vigor of his young trees permanently impaired, he *must* thin, and often to an extent which appears to him cruel, but is, in reality, most merciful to the trees.

We are decidedly opposed to the practice of allowing dwarf pears to root from the graft. It has been argued that by planting dwarfs we can get fruit earlier, and afterwards secure the permanence of the standard, by allowing the trees to root from the graft. This course, no doubt, has its advantages; but if we wanted standards, we should prefer to plant standards, and a good plan would be to set standards twenty feet apart, each way, with dwarfs between, the dwarfs to be removed when the standards required all the room. But if, when dwarfs begin to fail, they show a disposition to root from the pear (and we think they do not generally do this so long as the quince root remains vigorous), the cultivator wishes them transformed to standards, he should remember that the pear is apt to send out a single strong root, on one side, with a corresponding shoot above, thus making an ill-balanced tree, and he should take measures to cause it to root regularly all round, by "lipping" the trees. This is done by cutting several tongues with a small gouge, beginning at the bottom of the swelling which forms on the pear just above its junction with the quince, and pushing it upwards about an inch. The cuts must be kept open by placing a small pebble in them. It may be done either at the beginning of the growing season, or when the leaves ripen, early in September, covering above the cuts with rich earth.

Nor would we advise "double working" to any considerable extent. This operation consists in grafting on the quince some pear which makes a strong growth on that stock, and then regrafting it with a variety which does not succeed directly on the quince. When a dwarf pear becomes sufficiently large to graft in the limbs, any kind may be put in it; but so far as our observation goes, the practice of double working one or two year old trees is very troublesome, and very unsatisfactory, and we should advise the cultivator of dwarf pears to be content with such kinds as succeed when grafted directly on to good thrifty quince stocks.

KEEPING GRAPES.

One of the most serious objections to the more extensive culture of the grape, is the brief time it can be kept in good condition after ripening. This is especially true of the leading popular varieties, such as Concord, Delaware, Hartford Prolific, etc. They must be marketed and used in a very few days after being gathered, or they are valueless, and ripening so nearly at the same time, and necessarily forced at once into market, the result often is sales at prices so low as to be unsatisfactory to the grower.

As a partial remedy for this, fruit-houses are being devised, in which, by means of a low and uniform temperature, the season may be prolonged for many kinds, some even into the following spring or summer.

But, on account of its cost, this is a device that can only be practicable where large quantities of fruit are kept for the market, or by people of wealth, where cost is not a serious consideration. For the mass of the people, to whom fruit should not only be abundant, but as long continued as possible, the aim must be the selection of varieties which can be kept for the longest periods without such expense and care.

Fortunately there are varieties which combine good quality with the habit of long keeping. Among these we may name the Catawba, Iona, and, with some abatement as to quality, the Isabella.

But the sections of country where these varieties will succeed is limited, and therefore others must be sought. The most promising now before the public, so far as the writer is aware, are some numbers of Rogers's Hybrids, and first and best of these, the Salem. Various parties exhibited this superb grape, in excellent condition, at the recent fruit-growers' meetings in Rochester and Canandaigua, that had been kept into the month of February, without the aid of fruit houses, in ordinary rooms, subject to the changes of temperature, which so quickly destroy most grapes; and I learn that Mr. Babcock, of Lockport, has still some in good condition at this writing.

Years since Mr. Rogers pronounced the Salem the best of his grapes, and as that judgment is now confirmed by general approval, it adds no little to the value of the grape that it proves itself an excellent keeper. *R. C.*

Lockport, N. Y., March 13, 1871.

MANAGEMENT OF FRUIT TREES THAT BEAR EVERY ALTERNATE YEAR.

By Sereno Edwards Todd, Brooklyn, N. Y.

It is common for many fruit trees to yield a crop of fruit only once in two years. Some pomologists have assumed that the fruitful year always occurs on a season designated in the calendar by an *uneven* number; and the observations of others have been confined to trees that have yielded fruit during the season represented by an *even* number in the computation of centuries. Thus far in the progress of scientific pomology, no plausible reason has been adduced to show why the fruitful season may not occur during a year designated by an even or an uneven number. The fact that fruit trees, which have been accustomed to yield a crop during what we denominate an "odd year," have been so managed as to produce the accustomed supply on an "even year," assures pomologists that the fruitfulness, or want of productiveness, is not influenced either way, by the season represented by an odd or an even number.

The presentation of a few pomological facts touching this subject, will assure us beyond all doubt, that the fruitfulness of a tree — aside from certain causes beyond the control of mortals — is subject to familiar pomological laws, which every intelligent pomologist understands. It is understood that the fruit buds of an apple tree, from which the crop of apples must be produced during the season of 1871, were formed in the growing season of 1870. If there had been any occurrence to prevent the formation of fruit buds in 1870, the tree, of course, could not produce fruit during the season of 1871. It is well understood, also, that when a tree is growing rapidly, it cannot yield a bountiful supply of fruit; and when every branch and twig bends with a heavy crop, the spray and the buds cannot be expected to make more than a small and feeble growth. Hence, so large a proportion of the vital energies of the fruit tree bearing a heavy burden of fruit, is employed in the development of the crop, that the buds for the crop of the succeeding season cannot be properly unfolded. Therefore the season following the year of an abundant crop is appropriated solely to the development of fruit buds; and as there is no fruit requiring the energies of the tree, the whole vital force is concentrated in producing wood and fruit buds. The next season, whether the year be odd or even, nature having made preparation in buds, there will be a bountiful crop of fruit;

and if none of the buds or young fruit are broken off, all the vital powers of the tree will centre towards the full development of the fruit, to the serious neglect of the crop of buds.

An intelligent friend has a valuable apple tree, which yielded a bountiful crop of apples once in two years. He expressed a desire that pomologists could have sufficient skill to make that tree bear a moderate crop of fruit every season, rather than a heavy crop one year and nothing the next, as the variety was so excellent, they greatly desired a small supply, at least, every season. He was assured that if he would whip off all the blossoms on one half the tree-top, the portion defoliated would yield a supply the next season. As he knew that if the tree produced fruit on only one half the top, there would be more than his family could make use of, he reluctantly tried the experiment, in the success of which he cherished no confidence, and whipped off every blossom to be seen within the area of about half of the top. The result was just as it always will be under similar circumstances ; there was a supply of fruit, the following season, on that part of the tree from which the blossoms had been removed, while the other portion of the branches yielded no fruit.

The same result could have been attained by whipping off one half or more of the blossoms over the entire tree. By removing the blossoms, the specimens of fruit would have been greatly lessened. Hence the energies of the tree would have been adequate to the perfect development of the limited crop, and also to the preparation of the fruit buds for the crop of the succeeding season.

MAURICE BERNARDIN ROSE.

By Francis Parkman, Jamaica Plain, Mass.

This fine Hybrid Perpetual is one of the very best of the numerous brood of highly-colored roses which followed, and in great part resulted from, the introduction of General Jacqueminot. Its color is a deep crimson, approaching maroon. It is perfectly double, profuse in bloom, and disposed to flower in clusters. It is, besides, a good autumn bloomer—a virtue by no means universal among the so-called "Perpetuals." It bears a New England winter reasonably well, though a cer-

tain amount of dead wood will have to be cut out every spring, and the ends of the shoots are usually killed. In this respect, it resembles most of its class. We pruned a clump of six plants of this variety yesterday, and could have wished that it showed the same toughness of constitu-

Maurice Bernardin Rose.

tion as a clump of "John Hopper," just beside it. This latter sort had made shoots four feet high, and had no dead wood whatever.

The illustration is three fourths the natural size.

April 22, 1871.

VEGETABLES — THEIR HISTORY, USE, VARIETIES, AND CULTURE. — III.

By Alexander Hyde, Lee, Mass.

Beets.

The beet (*Beta vulgaris*) is a native of Southern Europe, where it grows wild on the sea-shore, and was originally cultivated for its leaves, which were boiled and used as greens, much like spinach, the roots being no larger than a man's thumb. A variety, called *Beta cycla*, is still cultivated for its leaves alone; but the root is the main thing sought for in modern cultivation, though the young and tender leaves furnish "greens" which are preferred by some to spinach.

The root of the beet is not strictly a true root, but a fleshy protuberance of the stem, to which the roots are attached. The bulbous portion of some varieties grows below the surface of the earth; in others, much of it is above, exposed to the air. If a root is cut transversely, it will be found to be composed of concentric zones of fibrous vessels and cellular tissue, and the leaf-stalks will be seen to penetrate deeply, forming what is called the *heart*, around which the bulbous matter is distributed in zones. The leaves and heart contain no sugar, but much inorganic matter, or ash, and are more valuable as food than is generally supposed. In the cellular tissue the saccharine matter is deposited in liquid form, and the sugar is found in the greatest abundance in young beets, and in that part which grows under ground.

Uses.

Beets have long been a favorite table vegetable, and they are also used extensively in France and Germany for the manufacture of sugar, and in all parts of Europe and the United States as food for stock. The consumption of sugar is increasing at a rapid rate both in this country and Europe, and it is well worthy of consideration whether we cannot make sugar and feed stock at the same time from our beet crop. We understand some experiments are being made in the manufacture of sugar from beets at the Massachusetts Agricultural College in Amherst, and if Professor Goessman will do for America what Napoleon I. did for France in this line, the state will not regret the money spent upon the college. For table use beets are most esteemed when young, both

because the sugar most abounds then, and because they come early in the season, when other vegetables are scarce. As the season advances, and the beets grow old, the cellular tissue, containing the sugar, diminishes, and the fibrous increases. This is particularly the case when the roots are exposed to the air. Hence beets, as soon as dug, should be covered with dry sand.

Varieties.

The four leading varieties of beets are, the Bassano, or Turnip, the Long Blood, the White, or Silesian, and the Mangold Wurtzel. The sub-varieties are legion. The first two of the leading varieties are those chiefly used for the table, the third for the manufacture of sugar, and the last for feeding stock. Some of the turnip-beets are ready for the table in six or eight weeks from sowing, and though not half grown, are tender and sweet, and are never more palatable. Even the Mangolds, when young, are very acceptable as a table beet; but the habit of their growth is to shoot out of the ground, and they soon become fibrous in that part exposed to the air. The sugar beet tastes no sweeter than the Bassano or Mangold, and the analysis shows but a trifle more sugar in one variety than in another. Johnson gives the analysis of the sugar beet of France as follows: —

Water,	81½
Sugar,	10½
Fibre, etc.,	5
Gluten,	3
	100

Knapp gives as the average result of several analyses of Mangolds, —

Water,	83
Sugar,	10
Fibre, etc.,	4
Gluten, etc.,	3
	100

We have no doubt that the amount of sugar in the beet varies much with the soil. We have raised beets in a sandy loam, manured chiefly with wood ashes, that were seemingly twice as sweet as those grown in a stronger soil highly enriched with nitrogenous manure. The roots do not grow as large in a sandy soil, but this loss is fully compensated by their superior quality. The sugar manufacturers of France pay a higher price for small than large beets, and prefer those raised on land

manured a year or two before the beets are sowed. Where the object is to feed stock, the larger the beet the better; for though the sugar may be less, the fibrine and salts are more, and as the sugar chiefly makes fat, and the fibrine muscle, the latter is preferable for stock raisers. So well do the French and Germans understand this, that they often feed to cattle that part of the beet that grows out of the ground, and sell the remainder to the sugar manufacturers.

Cultivation.

Beets will grow in almost any soil, provided it is deep and well pulverized; but in order to secure a large crop, the land must be highly enriched. As we have suggested, the sweetest beets grow on a rather light soil; but when raising for market we want a crop that will pay for our labor, and the manure must not be spared, especially as with most consumers a beet is a beet, and few stop to think whether it contains ten or twelve per cent. of sugar. Large fruits and vegetables uniformly sell better than small, and, when raising for market, it is folly not to cater to the demand. The rows should be a foot apart for the smaller varieties, and eighteen inches for the larger, and the seed should be dropped one in every inch or two, and the plants thinned so that the table varieties shall grow six inches and the coarser kinds twelve inches apart in the rows. The thinning out should be attended to early, so that those left may not be stunted in their growth; and the plants thus taken out are excellent for greens. Clean culture and frequent stirring of the soil are essential to a good crop.

Harvesting

Should be attended to before the hard frosts of autumn, for beets will not endure frost like turnips, and careful handling is essential to their keeping well. Beets bleed freely from every cut, and for this reason the top should not be cut too closely. The Mangolds are among the best keeping roots, if properly harvested; indeed, they improve by keeping, and should never be fed till January. A good yield is eight hundred bushels per acre, or twenty tons, though instances are recorded of nearly twice this amount.

We are glad to notice that beets are growing in favor with our agriculturists. Thus far they seem very free from injury by insects in this country, and are grown with much less expense, and more certainty, than most other roots. Cattle, horses, sheep, and swine eat them with avidity. For cows they seem peculiarly well adapted, producing an abun-

dant flow of rich milk; and they have this advantage over turnips, that they communicate to the milk no unpleasant flavor. Our climate and soil are adapted to the cultivation of beets, as is manifest from the large crops we raise here compared with those of France, where the average yield is only a little over ten tons to the acre. This, however, may be accounted for partly by the fact that the French raise them mostly for sugar, and prefer a small beet, while we raise them mainly for stock, and like the large kinds. Whoever will introduce into this country the manufacture of sugar from beets, will confer a greater favor upon the nation than he would by paying our national debt. The sugar bill, in most families, ranks next to the meat bill, and the quantity consumed is annually increasing. We remember hearing a farmer say, many years since, that "by making maple sugar he saved paying out twenty dollars for sweetening each year." The farmers whose "sweetening" does not cost them nowadays over twenty dollars per annum are few. We shall await the results of the experiments at Amherst in beet-sugar manufacture with no little interest.

SCRAPING APPLE TREES.

By J. S. Needham, West Peabody, Mass.

We hardly take up a work on horticulture, or even an agricultural paper, without seeing an article advising scraping apple trees.

My orchards are from ten to sixteen years planted, and until within three years I have always scraped the bark in the spring or midsummer. Now for the results. I often found small patches of bark, about the size of a finger-nail, discolored, having the appearance of being sunburnt; on applying a knife, cutting dry and hard, — dead to all appearances. Now my trees look like a shagbark hickory, all the old bark hanging by a small part in the middle so loosely that it can be taken off by the thumb and fingers better than with a scraper. These little pieces of bark, about the size of my hand, act as a perfect sun-shade for the tender new bark underneath, which is smooth, thrifty, of a pale brown color, with no more indications of diseased portions in it, than is found in the bark of a maiden tree of the same variety.

I have never allowed grass to grow under my trees. I feed them well, keep the soil mellow, shoe deep, all through the growing season.

with a small harrow made for the purpose, with five (of Ford's) teeth, that will not catch the roots, drawn by two horses, the driver riding on a seat so as to shun the fate of Absalom among the limbs, the horses going at a quick pace. One day will do up four acres, going both ways, leaving the soil, if dry, light and friable, and as porous as granulated sugar, five inches deep.

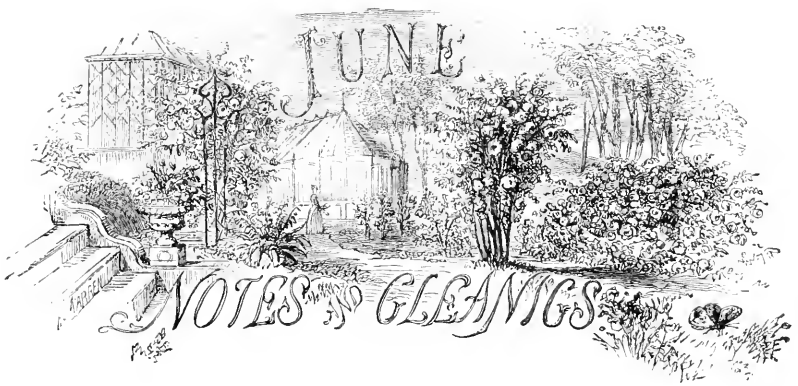
A horse may be groomed until doomsday, but if he does not have good food, he makes a sorry figure, and is unable to work. So with an apple tree; it may be scraped and washed, but if it don't have food and culture, it soon becomes a painted sepulchre, a receptacle for the labor lost trying to coax Nature to violate her great immutable law of compensation.

Some theorists entertain the idea that the elements necessary to produce a good crop of apples are deficient in the soil of late years. Is not the law of compensation violated? If we draw off the yearly crop, can we replace all the elements in the soil by manure, unless that manure is made of that kind of material? The inquiry has often been suggested to my mind, while rambling through woods, where no cattle roam, Why is it that those apple trees found among the woods are such constant bearers? Is it because all the fruit, perishing, leaves all its organic and inorganic elements to pass into the soil as food, to be taken up by the tree to make its crop? The fairest apples I grew last year were on a tree under which a lot of cider apples rotted the year previous. The original Fall Harvey tree sprang up and grew (in this town) within six feet of a cider mill: it yielded yearly great crops. After the mill was removed from the building, the tree commenced to fail, and is now gone. Had the elements of the acids anything to do for these trees, or were they accidental circumstances?

I have a lot of pomace from five or six thousand bushels of apples, that I shall mulch a part of my orchard with next June, after my second harrowing. As a manure for grass, or any hoed crops, it is worthless.

This matter may all be a crotchet, a whim of my brain; but I am going to give it a good trial, and perhaps may report the results to you some future time.

I know it is getting out of the old rut, but the old ruts are so very deep there is no prospect of success in pulling in them. When the hub rubs it is time to look at your *ways*. I have fought the battle, won the trees, and good ones too; now I want the fruits of the victory.



NOTES ON THE MAY NUMBER. — MR. EDITOR: It would be affectation in me to pretend that I am not pleased with the calls that have been made for something further from "Bismarck;" and when anything occurs to me which promises to interest your readers, I shall be happy to communicate it. Somehow or other I can write more freely when I have a text to start from, and so I will give you a few thoughts which have been suggested by your May number. And first, of Mr. Flagg's question —

Are Peach Buds with Large Petals the Hardiest? — My observation would lead me to say, that both the fact and the theory advanced in explanation of it, are highly probable. And there are one or two of the kinds which Mr. Flagg thinks worth looking up, which I have grown to some extent, one of which, the Barrington, I should say is decidedly more hardy than the average. But I am afraid that its pale greenish-white color would not be sufficiently attractive here, however it might be for our English cousins, among whom it has been chiefly grown. With me it ripens the last instead of the first of September. The Grosse Mignonne, if I recollect rightly, used to give at least a small crop, when many kinds failed wholly. It is easily identified, both in trees and fruit; but the George IV., and similar small flowered varieties, have been largely cultivated for it. I thought it a little apt to rot.

More about Heating Green-houses. "N. F. F.'s" reasoning is very good, and I do not doubt that his experience is correctly stated; but there is one point which appears to have been overlooked, and to which I wish to call attention, and that is, that the climate of Baltimore is very different from that of Boston, and consequently heating green-houses is a very different thing there from what

it is in the former place. Let us have the experience of all; but let us remember that the lessons of Boston experience may need considerable modification before being taught at Baltimore, and *vice versa.*

The Gardens of the Chesapeake. — How is it that we have never heard anything about the horticultural capabilities of these islands before? I for one thank Mr. Lodge for introducing us to them, and I hope that as they gain the intelligent labor, which is the only thing needed to make them the most productive and profitable gardens in America, he will keep us informed of their progress.

Fine Orchids. — What can be more gorgeous than some of these orchids, and what can be more grotesque than others? The strangeness of a plant growing on a block of wood, gives the impression that it must be something rare and difficult to cultivate; and so I am glad to know that Mr. Barker is going to tell the readers of the Journal how to grow orchids, for I have no doubt he will show them that it is a much simpler and less expensive thing than is generally supposed. *Bismarck.*

The Effect of Coal Gas on Trees. — In our January number we printed a statement, from the Gardener's Chronicle, that Dr. Poselger had shown, by repeated experiments, that the escape of coal gas, in any quantity, was not injurious to trees. A correspondent of the Worcester Spy, commenting on this paragraph, thinks that Dr. Poselger's views are widely at variance with the results of experience with gas in that city. We remember well that soon after gas was introduced into Salem, Mass., several elm and other shade trees in the streets were killed, as was supposed, by the escape of gas. And the editor of the Gardener's Monthly thinks that if Dr. Poselger should come to Philadelphia and try the gas, his experiments would take a different turn. We can only account for his conclusion by the supposition, that the gas which he used was perfectly pure, which is not apt to be the case with that supplied for lighting cities. There is probably but little gas from which sulphur in some form is entirely absent, and a very small amount of sulphurous vapor is injurious both to animal and vegetable life, as is well known to all who have attempted to cultivate plants in a room lighted with gas, or warmed by a stove from which gas escaped, — that is, when mineral coal was used. We are glad that the publication of Dr. Poselger's views has brought out the comments which we have given above, and we must conclude that leaky gas-pipes near trees should by all means be avoided.

Decay of Orchards. — Even from the Pacific coast we hear complaints of the decay of the apple orchards. A correspondent of the Willamette Farmer ascribes this decay to too heavy crops on too young trees, and the propagation from these decayed trees. He considers about ten years the average period during which the apple tree in Oregon will grow vigorously and bear fruit.

Planting Forests in Maine. — An exchange says that the people in Maine, from whence such immense quantities of pine and other timber have been drawn, are talking about sowing the seeds of forest trees for lumber, and especially those of the white pine.

Distorted Pink Stem. — A curious instance of distorted growth occurring in a plant of the Carnation of the Perpetual variety, was lately handed us by Mr. Asa Kingsbury, of Foxboro', Mass., from the green-house of Mr. James Keyes. At first sight, it suggested the wound caused by some insect sting, but dissection disproved that. The fungus theory being the present favorite and fashionable whim to account for vegetable diseases, regard was had to it to ascertain what connection that might have. But fungi and insects failing, the resolution of the matter was referred to the similar curious growth of asparagus stalks, butter-cup stems, and the flattened peduncles of dandelions, dahlias, etc. In these, and similar cases, the beginning of the trouble is traceable to the struggle of several superfluous buds, side by side, in endeavoring to develop and grow where only one should do so normally and orderly.

It is a well-known fact in vegetable physiology, that the leaves are set upon the main stalk in some regular and undeviating (or nearly so) order, by which symmetry, and a fair chance to do all that is required of them, can be secured. If by any accident or exciting cause this course is disturbed, the subsequent growth follows to the end this same direction. In the present instance, the leaf succeeding to the last regularly posited leaf, was slightly bent to the right from its very first birth ; and its base, it is to be observed, became, in consequence of some excess of parenchymatous or tissue-matter, liable to adhesive growth to the back of the main stem. Every succeeding leaf, by this primary aberration, was insensibly drawn in the same direction, instead of being properly distributed over the rest of the circumference of the stem. The tissue, too, thus disturbed, became more spongy and succulent, and offered a ready opportunity for it to adhere to that of the bases of the succeeding foliage, and each new edge to ingraft itself into an inwrapping sheath, allowing but a portion of the rest of the leaves to have any individual expansion, twenty or more leaves uniting into one plate by the adherent edges of their bases. The cluster of flower buds followed more or less this abnormal and eccentric twist, until by this extraordinary effort to sustain themselves under restraint, the pith of the main stalk, and the bark bound by the ever-increasing folds of leaf-bases, became also spongy and porous, and swelled into a gouty or vesicular figure, surmounted by a flower sessile on its top, and also by its accompanying buds crowded to one side, but with their flower-stalks less shortened or curtailed.

To compensate, in some measure, for this departure from the usual correct behavior of our carnation, which should be "the very pink of propriety," the oddity of the arrangement should be considered ; the effort to present the individual leaf-growth being reduced to the prominence of the mid-rib, suggested to every eye a semblance to some green worm or larva, such as feeds in summer on our potato vines, grape leaves, or other dainty and succulent plant. But as an additional ornament to the green-house, this peculiar variety would be rejected at once as no improvement on Nature. *J. L. R.*

Soil for Chestnut Trees. — "W. C. F.," in Hearth and Home, thinks it important to select a well-drained soil for the chestnut. They do not flourish on a retentive clay subsoil.

American Pomological Society. — The coming session of this society, to be held at Richmond, Va., on the 6th, 7th, and 8th of September, will undoubtedly be one of the most important sessions the society has ever held. This being the first meeting held so far south, and being in a region so well adapted to the growth of fruit, and among so many fruit growers, we may anticipate much of novelty, as well as of value otherwise. As we understand from the president, it is intended to make a special effort to complete the catalogue by adding the division relating to the Southern States. The collections of fruit will no doubt be of interest, as comprising varieties drawn from a wider extent of country than heretofore, including the south as well as the north and west.

Department of Agriculture. — General Capron, the Commissioner of Agriculture, availed of the opportunity of the late commission to St. Domingo, to send the botanist of the department, Dr. Parry, and his assistant, Mr. Brummell, to investigate the flora of the island, as far as limited time afforded. They made dilligent use of the opportunity, and have brought home for the large new conservatory of the department seventy or eighty kinds of new plants, including the Columnar Cactus, which grows thirty feet high; the *Agave antillarum*, with orange-colored flowers; and the *A. sisalana*, Sisal Hemp; also the Alligator pear, several new ferns, and various hard wood plants. Where it was not practicable to obtain the young plants of desirable trees, they procured seeds, as the Lignum Vita, Red Wood, Star Apple, Sappodilla Plum, etc., comprising upwards of one hundred medicinal, fibre, and economic plants, all useful in the arts, as well as many beautiful plants for ornamental purposes. *R.*

Analysis of Kainit. — The discovery of kainit is one of the most important of modern times, and it cannot fail to be of great service to agriculture. With plenty of potash coming to us at cheap rates from natural sources, and with the phosphates from our own immense deposits in South Carolina and New Jersey, the future of agriculture is full of promise. We must not expect to reap immediate satisfactory advantages, as it is by slow processes that the gifts of Nature are made fully available. But the time is near at hand when plant food will be furnished in great abundance, and at low prices, to husbandmen everywhere.

Kainit in commerce is a calcined and ground product, and, according to analysis, contains

Sulphate of potash	30.00
" " magnesia	20.00
Chloride. " "	5.00
" " sodium	35.00
Sulphate of lime	10.00
	100.00

The product is not uniform, as it varies in quality in various localities or parts of the same deposit. These potash, magnesia, soda, and lime salts are all of great utility in agriculture, and we think kainit, as soon as it is understood, and the best methods of preparation or combination are known, will be largely employed. *Boston Journal of Chemistry.*

THE EUROPEAN GRAPE IN THE OPEN AIR. — The question whether the varieties of the *Vitis vinifera* can be made to flourish in the open air in this country, has, after much experiment, been supposed to be settled in the negative; and such has been the improvement in the native species, that the question of acclimating the European is of much less consequence than formerly. Perhaps some may think it inexpedient to open it again; but a communication in the Country Gentleman, from Dr. S. J. Parker, of Ithaca, N. Y., states some facts bearing on it, which we think worthy of being noted. They are in relation to seedlings raised by David Thompson, of Green Island, Albany County, N. Y. His principle was to take the choicest foreign varieties, and so seed and re-seed them, that the *Vitis vinifera* of the old world should endure the climate of the new continent without the protection of glass. And for years, in a small vineyard on Green Island, he has exhibited the foreign vines *thus re-seeded*, in health, and with loads of the choicest clusters. The last three years he has invited every intelligent grape grower to come and see these seedlings; and thousands have availed themselves of the opportunity, among whom was Dr. Parker, who assured himself of the following facts: —

"1st. Mr. Thompson does grow with health, some hundreds of foreign seedlings in open air, without unusual protection. 2d. The sweetness and flavor are such, that if they can be grown extensively in the United States, in the same manner as at Green Island, then he is the greatest of grape simpletons who does not buy and cultivate them; for no American grape can compare in quality with them. I say this advisedly; their flavor, size, and sweetness, are beyond all dispute. There is no possibility of any discussion as to quality and beauty of bunches; they are unsurpassed by any collection in America, growing anywhere in the open air. No honest man will dispute this. 3d. They are prolific, with large, full clusters; and so far as proven, they are hardy, in the sense of hardiness that endures the climate of the vicinity of Albany, N. Y. Whether they are hardy in all places, remains to be proven. They, too, ripen their wood perfectly in the open air, so as to be in prime order for the next season's bearing."

Dr. Parker further remarks, "that there are places near me in Central New York, where no Isabella, Catawba, Delaware, or other grape, will ever be sweet and choicely ripened, where the Chasselas will ripen; that on the shores of Lake Ontario, the best Miller's Burgundy I ever ate are grown, where none of the best American grapes will grow; that the Traminer and other later varieties do grow in certain other localities. And hence we should not be so silly as to assert that we never can get seedlings of foreign grapes worth our attention, suited to general cultivation."

MOISTURE IN TREES. — According to Dr. Hartig's experiments, woods (trees) generally contain during the winter months about an average of 50.7 per cent. of moisture; in March and April, about 46.9 per cent.; in May, June, and July, about 48 per cent., while up to the end of November the quantity of moisture increases but little. Air-dried wood (timber) contains from twenty to twenty-five per cent. of water, and never less than ten per cent.

Manufacturer and Builder.

BEDDING PLANTS. — I send you the name of a few bedding plants that stood the last dry summer, bedded out, giving satisfaction. Double Geranium Glory de Nancy (my plants were large when planted out), Geranium General Grant, scarlet, Madame Vaucher, white, Bicolor, two-colored, *Nierembergia frutescens* (by the by, I had this plant eighteen or twenty years ago, without a specific name, and now it comes as a new species, by the name of Frutescens), a charming bedding plant, all the time in bloom. *Justicea carnea*, Petunias in variety, Madagascar Vincas, *Bouvardia leiantha*, Zinnias in variety, *Phlox Drummondii* in variety, Lantana in variety, Double Portulacca in variety, Mesembryanthemum, Alternantheras, Alyssum in variety and double, a Blue Diptercanthus (spectabile), Double Sanvitalia procumbens. *R. P.*

QUEENS, LONG ISLAND.

LARGE ASPARAGUS. — June 2 being prize day for asparagus, Mr. J. B. Moore presented four bunches for competition, and out of curiosity one bunch, containing twelve stalks, was placed on the scales by the committee, and found to weigh fifty-three ounces. It is hardly necessary to add that it took the first prize. There were also on exhibition, from New York, one bunch of the famous Conover's Colossal, sent on, no doubt, with a view to "astonish the natives." It has been claimed that this asparagus will attain four times the size of any other variety; this bunch, although containing *eighteen stalks*, weighed only fifty-six ounces, and possessed no points of superiority over that shown by Mr. Moore. We hope our New York friends will try again another season.

C. N. Brackett, in Mass. Hort. Soc. Veg. Com. Report.

THE HIGH BUSH BLUEBERRY. — Doctor James Hall, one of our oldest and most experienced fruit growers, has growing in his orchard near Davenport, what he at first supposed to be the true "whortleberry;" but those who are acquainted with the fruit, pronounce it the *New England* high bush blueberry. The tree or shrub is a vigorous grower, and a prolific bearer; propagates very readily from layers; the fruit is very pleasant, and is about *half* the size of the Concord grape, and has a heavy bloom, resembling that fruit very much.

The doctor is planting this fruit very extensively, and considers it a valuable acquisition to the small fruit family.

Report of the Iowa State Horticultural Society.

MULBERRY TREES. — In China the constant plucking of mulberry leaves for silkworms, causes the vigor of the tree to ebb away, when they are rooted up and replaced by young trees. *Hearth and Home.*

THE WALTER GRAPE. — W. H. Coleman, in the Country Gentleman, says, the chief merit of the Walter grape would seem to be its keeping qualities, in which it resembles its parent, the Diana. In point of flavor and tenderness of pulp, it is surpassed by several of the newer kinds.

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

Flower Groups in Gardens. — We select the following examples from an excellent article in the Country Gentleman's Magazine, and may perhaps hereafter give other specimens.

Beauty of outline is not all that is needed to please the eye, but it is a major part of it. Even the diamond gains much from the setting; and so do flowers. True, the diamond is bright, the flower beautiful, anywhere. But the former is never so bright as when it flashes forth from the brow of beauty, the latter never so charming as when it looks up at us from a chaste, elegant bed, cushioned round with green grass, and set in any framework of spotlessly bright, sparkling gravel.

The following sketches have the merit of being easily transferred from paper to ground, which is of importance to all gardeners. With a large pair of compasses, made with two sharp-pointed sticks, — say two feet long, for legs, — and a bit of stout string to graduate the distance of the two legs at pleasure, all these may be as easily drawn upon the ground as upon paper. The scale is enlarged; that is all. The most convenient mode of proceeding is to draw a straight line with perpendiculars, proceeding across to the points of the side figures, and then work from these.

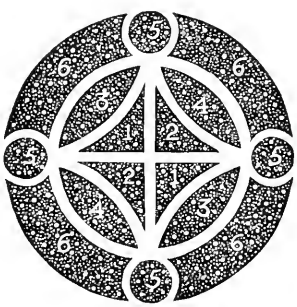


Fig. 1.

Fig. 1 needs little comment. Its elegance, compactness, and simple beauty commend themselves. Who would not like to have it in front of their drawing-room window? And in what position could it fail to please? The beds would look well furnished and attractive in pairs with the following selection of plants: —

1, 1. White Verbena.
2, 2. Verbena Scarlet King.
3, 3. Mangles's Variegated Pelargonium.
4, 4. Pelargonium Lady Cullum.
5, 5, 5, 5. Pyrethrum Golden Feather.
6, 6, 6, 6. Clipper, Lord Derby, Amy Hogg, and Persian Pelargoniums, each bed of one variety.

Fig. 2 illustrates a simple mode of furnishing the centre of a ribbon. It breaks up the monotony of straight lines by the easy flow of curved ones. The effect of both is heightened by the contrast, just as the harmony of the sweetest instrumental music is enriched and mellowed into a softer, sweeter melody by the addition of the human voice, or the distant murmur of falling waters. The centre figures may be of any form in this style, so long as the lines are curved. Some prefer circles to ellipses, and others more intricate figures. Others cut the centre into diamonds, squares, or parallelograms. In the latter the beauty of the centre is lost, and the contrast between the centre and straight lines bounding the sides is not so striking. Diamonds, however, often look well. But, upon the whole, few arrangements of this kind are more effective than Fig. 2. The curves are easy and full of grace, and the spaces large enough to fill the eye satisfactorily with the different colors. The following refer to Fig. 2 : —

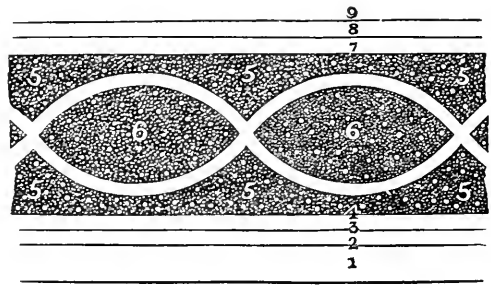


Fig. 2.

1. Gravel walk.
2. Alternanthera amœna.
3. Lobelia speciosa.
4. Cerastium tomentosum.
5. Verbena Purple King.
6. Pelargonium Spread Eagle.
7. Pelargonium Christine.
8. Pelargonium Stella.
9. Calceolaria amplexicaulis.

The waving lines may be formed of *Coleus Verschaffeltii* and Golden Feather crossing each other, scarlet and white pelargonium, *Iresine Lindenii* and Lady Cullum pelargonium, Centaurea and Purple King verbena, or Cerastium and *Lobelia speciosa*. Violent contrasts between the two lines are the more striking, though there are cases when a single color, either very bright or of a neutral tint, is more chaste and beautiful, as enclosing bands to the central figures.

New Plants. — Among the novelties mentioned in our English exchanges is an improved variety of that favorite flower, the mignonette, known as the Giant Crimson. It is described as very robust, with very large spikes of handsome flowers, of exquisite fragrance, and a free and perpetual bloomer. Seed is offered for sale in this country.

Centaurea Clementii is described as of something the same character with *C. ragusina*, but having the foliage even more prominently pinnatifid, and gracefully arching in an opposite direction from the hoary stem. It is of robust growth.

ACHIMENES AND GLOXINIAS FROM SEED. — Seedlings may be raised in a dung-bed as easily as in a stove. Sow it any time in March, and till the 15th of April. Shallow seed-pans should be filled with first a layer of cocoa-nut dust, and the remainder peat, broken fine and mixed with a fourth part silver-sand. Sow thin and cover the seed with a dusting of peat powder, and cover with squares of glass. Place the pans in a heat of seventy degrees, and when the seedlings have each two good leaves, transplant them singly into thumb-pots in the same mixture as recommended for flowering plants, but with fine sandy compost to fill in next the roots. Replace them in the bed, and when they fill the pots with roots, shift to sixty-sized pots, and in these let them remain for the season and till the next spring, taking care to ripen them off well in the autumn. These will not flower till the second year. By sowing in February, and growing them on with great care in a steady moist heat of seventy degrees, some will flower the first season. *Floral World.*

GOLDEN FEATHER PYRETHRUM. — Much as this plant is lauded for its usefulness, I do not remember to have seen the best mode of "using it" throughout the season, as, if you plant out in May cuttings — say from six to nine inches apart, from the repeated pinching to keep the flowers down, they will, ere the middle of July, have grown together and lost the beautiful golden fern-like appearance, so much enhanced by the background of soil or dark-colored plants showing through the graceful foliage. All who desire to use it to perfection should endeavor to keep the plants in the state most favorable to this perfect display. As cutting and pinching fail so miserably, I say, Get two successions to replace your first lot (which should be strong plants from cuttings planted out in April, if you have grown them hardy, or in May), having a batch of autumn-sown seedlings coming on to take their place as soon as they go to seed and become weedy, and a batch of spring-sown seedlings to replace these when they shall have arrived at the same state. Thus you will retain that charming distinctness and beauty so attractive in this plant in its early growth, and so totally lost when it has grown together and the knife becomes necessary.

R. H. Poynter, Taunton, in English Journal of Horticulture.

INFLUENCE OF THE STOCK ON THE GRAFT. — At the meeting of the Royal Horticultural Society on the 2d instant., Messrs. Downie, Laird, and Laing, Stanstead Park Nursery, Forest Hill, exhibited several grafted abutilons to show the influence of stock on scion, and *vice versâ*. Thus *A. mesapotamicum* and *A. Duc de Malakoff*, both green-leaved kinds, grafted on the beautifully-variegated *A. Thompsoni*, became variegated like the stock. On the other hand, *A. Thompsoni*, grafted on *A. mesapotamicum*, and the growing point pinched back, had caused the production of variegated shoots from the originally green stock. It is also worthy of note that short scions of hard wood of the green-leaved kinds are more quickly influenced by the stock than scions of soft wood. Messrs Downie, Laird, and Laing used both hard and soft wood as scions in grafting the green-leaved varieties on *A. Thompsoni*, and although all the stocks were grafted at the same time, the plants produced by the scions of soft wood have as yet shown no signs of variegation. *Gardener's Magazine.*

THE IVY GREEN appears to be on the high road to be regarded as a fancy plant, if such a term be allowable. At all events, as auriculas, and geraniums, and roses are cultivated in endless variety, and regarded as "fancy flowers," and flowers for "fanciers," so the ivy, apparently a most unpromising subject, has evidently found one advocate of its claims to be introduced to the intellectual region in which "fancies," "tastes," "passions," and "manias," originate. In the Gardener's Magazine, just published, occur descriptions and figures of no less than fifty varieties of ivies in the well-known collections of experimental plants cultivated by Mr. Shirley Hibberd. We learn from the descriptions of these ivies that they are most various in character, some of them producing gigantic leaves of a thick texture, some producing white or golden berries: others, again, richly variegated, and a few that are both minute and curious, the smallest of all having leaves of a purple color, that in outlines resemble the foot of a bird. Few of us who look casually at common things could have had any idea that any one cultivator, however ardent and able, could have accomplished such wonders for such a sober plant as the "ivy green;" nor is our surprise in any degree lessened when we learn that these fifty sorts have actually been selected as the most distinct and beautiful out of about two hundred. All the best specimens, some two hundred in number, in the Stoke Newington collection, have lately been purchased by Mr. Charles Turner, of the Royal Nurseries, Slough. *City Press.*

CORDON APPLE TREES. — From twenty cordon apple trees planted last February I have gathered above one hundred apples, some more than twelve inches in circumference, although some of the trees are only two feet and six inches in length. They are trained on wires, the back row fifteen inches, and the front row twelve inches from the ground; but I intend raising the wire three inches, as the border under the cordons is entirely devoted to strawberries, the foliage of which has interfered with the early ripening of the apples. I have eight sorts, viz.: Calville Blanche, Reinette du Canada, Reinette Grise, Reinette de Caux, Reinette d'Espagne, Pomme d'Api, Calville St. Sauveur, and Northern Spy. All are on Paradise stocks. *Gardener's Magazine.*

WOODWARDIA RADICANS. — Though a hardy fern, this grows to much finer proportions in a cool house. It requires plenty of pot room, and a good stout soil — say half peat and half loam, with sand added. It should stand high up in a conspicuous position to show the fronds well, as they always arch over downwards. If you find it troublesome to root the bulbs, peg the fronds down over pots filled with sandy peat, and separate the bulbs when rooted.
Floral World.

DEEP PLANTING. — The English Journal of Horticulture advises to plant pear trees with the upper roots "not more than a foot below the surface," and adds, "No planting is much worse than deep planting." The latter statement is very true; but we should say that trees with their upper roots a foot below the surface were *very* deeply planted. We should like to know what are our English friends' ideas of deep planting.

THE ROSY PAMPAS GRASS. — The rosy-flowered Pampas and the variegated-leaved Pampas were, in their days of extreme newness, introduced to our readers with the same promptness and discretion as we have always observed in our notices of new plants. The reader need not trouble to send a general vote of thanks; we will take that as granted. As to the Rosy Pampas, however, we were not particularly sanguine, and said the least possible, in order that we might not favor the sale of a plant which might prove to be less desirable than the cheaper and commoner one already in cultivation. It is high time to record that the Rosy Pampas is a glorious thing; in growth and contour, of course, it agrees with the Silvery Pampas; but the plumes are of a bright purplish rose color, which shows up well above the great fountain of green leaves, and in the sunshine gleams with a quite metallic lustre. These remarks apply, however, to the best form of the Rosy Pampas; for there are several, the result simply of the plants having been raised from seed. Now, those who would plant the Rosy Pampas would do well to proceed in this wise: In the first place, make up your mind to pay a good price for large, mature plants, instead of obtaining mere mites in pots. In the second place, go to a nursery and choose your plants while they are in flower, and have them carefully lifted and sent home, and of course plant them where they are to remain in the most careful manner. A good bed of substantial loam on a well-drained foundation, with all the light and air of the free heaven, are the only conditions of success in the cultivation of the Pampas Grass. Not alone, however, should the Rosy Pampas be purchased, now, but the Silvery Pampas also; for at this time you can choose between males and females, and find amongst them some that are more striking and stately in characters than others. *Gardener's Magazine.*

MUSHROOMS IN HOUSES MAGGOTY IN SUMMER. — This is a very common occurrence, in hot summers, where coolness cannot be sufficiently secured. Airiness without draught, and coolness, are next to indispensable to good mushrooms in summer. Hence the advantage of cellars for summer growth. We have been frequently troubled with maggots, though some summers we have escaped altogether. Much may be done with double or thick walls and a double roof; or, if not, thatch, whitening it after May to keep the heat out. Much also may be done by syringing walls and floors; but it is difficult to grow good mushrooms in houses easily heated by the sun. We prefer an open shed, or the open air under the shade of trees; but a place underground is best.

English Journal of Horticulture.

FLOWERING OF VICTORIA REGIA IN THE OPEN AIR IN ENGLAND. — Mr. Mason, the superintendent of Princess Park, Liverpool, informs us that a specimen of this fine lily has flowered superbly, without any protection whatever, in the garden of —— Meyers, Esq., Bebbington, Cheshire, during the present autumn. When he saw it in September, it was in the most luxuriant health, the leaves being from five to six feet in diameter. *Nymphæa devoniensis*, *N. blanda*, *N. cærulea*, *N. rubra*, and *N. stellata* were also growing freely and flowering abundantly in the open air. The water in the tank was heated to the usual temperature by means of a service of hot-water pipes. *Floral World.*

New Currants. — *Warner's Red Grape* I consider the best of all currants for general purposes. The bunches are about six inches long, while the berries are large, of a fine bright red color, and have a pleasant subacid flavor. The fruit hangs a long time on the tree; it is therefore a good kind for growing on north walls, and in that aspect will keep fit for use till the end of November.

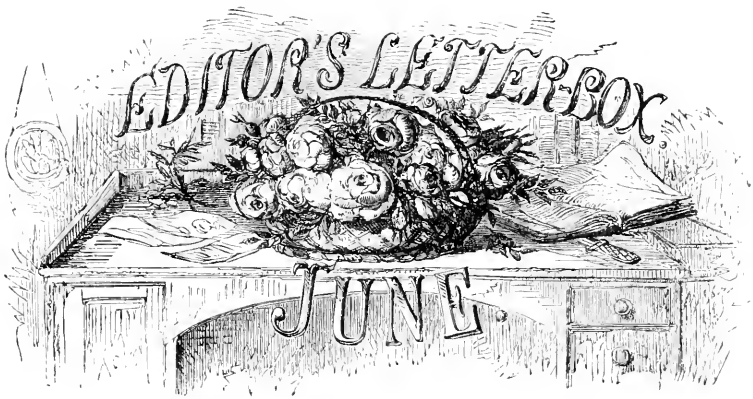
The *Gloucester Red* is a fine dark red variety. The berries are large, but the bunch is short; the fruit is, however, less acid than other red kinds, and more suitable for the table. The habit of the tree is short and stubby, and it requires high cultivation to have it in perfection.

The *Raby Castle* is an excellent kind; this and the *Warrior's Grape* are the two best for jelly, and all culinary purposes. The trees are of robust growth, and very prolific, producing large fruit of good quality. *Florist and Pomologist.*

Costly Plants. — The Catalogue of "William Bull, New Plant Merchant," Chelsea, England, contains a list of Tree Ferns, varying in price from two guineas to fifty guineas each. The plant offered at the latter price is a *Dicksonia antarctica*, with stem nine feet three inches in height; total height thirteen feet eleven inches, spread of head five feet. A double white camellia, nine feet high and eight feet through, described as a magnificent specimen, is offered for fifty guineas. The collection of orchids consists of more than nine hundred species, some of which are priced at seven guineas per plant. The *Myrsiphyllum asparagoides*, known in this country as "Smilax" and "Boston Vine," and cultivated by whole housefuls for decorative purposes, is here priced at half a guinea each. The establishment comprises nearly fifty thousand superficial feet of glass, filled with new and rare plants, and Mr. Bull states that upwards of one thousand prizes and awards have been made to him at the principal London flower shows for new and rare plants alone. The first thing in the catalogue is a "List of Patrons," commencing with the Queen of England, the Emperor of Russia, and other sovereigns, and going down through a long list of noblemen, and horticultural and botanic societies, etc., in Dublin, St. Petersburg, Paris, Zurich, Calcutta, Rangoon, Ceylon, Natal, Java, Australia, and other places.

Forced Lilies of the Valley are apt to be either all flowers or all foliage, instead of having proper proportions of both. The deficiency of foliage is due to their having no new roots, and to forcing them in too much heat; and the deficiency of flowers is due to the bulbs being immature. *Floral World.*

The Portrait of Mr. Thomas Rivers, of Sawbridgeworth, recently got up by subscription, has been presented to the trustees of the Lindley Library, and will, it is understood, be hung in the council-room of the Royal Horticultural Society. The portrait is a very pleasing one, and it is certainly most fitting that one who has done so much for horticulture should meet with some public recognition of his services. *Florist and Pomologist.*



THE Editors of "Tilton's Journal of Horticulture" cordially invite all interested in the various branches of horticulture to send questions upon any subject on which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to inquiries in regard to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to horticulturists.

We would especially invite our friends to communicate any little items of experience for our "Notes and Gleanings," and also the results of experiments. Such items are always readable, and of general interest.

We must, however, request that no one will write to the contributors to our columns upon subjects communicated to the Magazine.

Anonymous communications cannot be noticed: we require the name and address of our correspondents as pledges of good faith.

Rejected communications will be returned when accompanied by the requisite number of stamps.

S. P., Paddock's Grove. — The plant known as "African Gold Dust," is the *Aucuba japonica*. Here it is a green-house plant, but at Washington it stands the winters with a little protection, and south of that it is quite hardy. You can obtain it from any nurseryman who has an assortment of green-house plants. The foliage, blotched with yellow, is very ornamental, and so are the red berries; but the plant is dicœcious, and to produce fruit you must have a pair of plants — a pistillate and a staminate.

THE FRUIT PROSPECTS AT ALTON, ILLINOIS, is good for all except peaches, of which there will be a light crop. The frost of April 23 did much damage to strawberries and grapes in some sections of the West. *F. S.*

E. H., Ayer, Mass. — If we were restricted to two varieties of grapes for a cold house, we should say Black Hamburg and White Sweetwater, for the same reasons that we should recommend the Bartlett pear and Concord grape; not that they are of the finest flavor, but they are hardy, productive, easily grown, and may be relied on to give a crop. Of twelve vines, we would plant nine Hamburgs and three Sweetwaters, and perhaps for market we could not do better than this. But for amateur culture we should prefer to plant one each of Sweetwater, Black Prince, West's St. Peters, White Frontignan, and Lady Downes, making the rest of the twelve Black Hamburg.

P. H.. New Dover, Del. — The deep planting of your asparagus might do with a few plants as an experiment, though we do not think it will succeed, and we feel certain you will never get *early* asparagus in this way. If planted just deep enough to run a cultivator without injuring the roots, it would be quite sufficient. Five or six inches of earth over them would be ample. Neither can we approve the distance you have chosen. Four feet by five and a half gives each plant twenty-two square feet, which is altogether unnecessary. You may get a few very large stalks, but you never can get a paying crop. We should dig up the whole bed, and plant in rows three and a half feet apart, the plants twelve, or at most fifteen inches apart in the row, and we would make a deep furrow, and put the manure under them.

La Constante Strawberry. — Mr. Editor: I saw your notice of the La Constante strawberry in your Journal, and would say that I have raised the berry the last six years with first-rate luck, and have had them so large that twenty-five berries would fill a common strawberry box heaping full. I have had them six and a half inches in circumference, and they yield first rate with me. I set in drills two feet apart, and six inches in the drills, and manure between the drills with well-rotted barn manure, and cover in the winter with leaves. I am raising a seedling; it fruited for the first time last summer and it was very good — very good size, and ripened good, and good color. I hope to give you a good description of it this summer, if nothing happens. *R. T. D.*

New Bedford, Mass., Feb. 13.

[Thanks for the offer of a description of your seedling strawberry. If you have a few berries to spare, we should like to see a specimen. — Ed.]

Mrs. S. E. B., Clear Creek Station, Galveston Co., Texas, writes that "Irish potatoes are very fine here as new potatoes, but after being ripe some time they lose their dry mealiness, and become waxy, or tough and clammy, when cooked. It does not matter whether they are dug or left in the ground, it is all the same: no one thinks of having nice mealy potatoes in August or after. The potato crop is all harvested in June, and eaten up by July; what are left are worthless. Is there a remedy, and what is it?" The only suggestion we can make, is to try planting late, so as to have the crop mature later; but we print this statement in the hope that some of our southern readers will be able to tell us of an effectual remedy.

W. E. T., Macon City, Mo. — We should have reversed your plan, and used the hog-pen manure with the strawberries, and the chip manure and ashes for the grape vines. The hog-pen manure, if applied freely, would be likely to produce a rank growth of wood, which would not ripen as well as if a less stimulating manure had been used, and accordingly would be more likely to winter-kill, though there would not be as much danger from this source with you as with us. The hog-pen manure would answer well for the strawberries, but if fresh, it should be worked deeply into the ground. We do not mean that it should all be buried deep, but the ground should be stirred to a good depth, and the manure mixed through the whole. On a stiff clay like yours, chip manure, or other coarse manure, will be beneficial by its mechanical effect, keeping the ground light and open. The gooseberries will do better in a cool place than in a warm, and if slightly shaded it will be no harm; but they should have a good circulation of air to prevent mildew. In terracing a hill-side, the soil is too often left very thin in some places, and unnecessarily deep in others. It is worth while to spend some pains and money to avoid this.

Mr. Editor: In looking over your Journal for April, I noticed in Mr. George Jaques' article on Pruning, that he recommends a covering of shellac, grafting-wax, coal tar, or common paint as a protection from the air. It is not my intention, nor do I consider myself capable of contradicting such good authority as Mr. Jaques, but I will give you a little experiment which I tried. It happened to be on a mode of pruning which I do not fancy. It is my misfortune to live in a neighborhood where there are a good many goats kept, and one of those destructive pests got into my garden and barked one of my pear trees very badly; it was eaten clear through to the wood in two places; one place on the trunk, and another place on a large limb. The wound on the body of the tree I covered with grafting-wax, the wound on the limb I painted with common house paint; this was for an experiment; the place with the wax I wound round with a piece of stiff cotton cloth. This happened in the fall. The following summer I took off the bandage, and to my great satisfaction, the wound under the wax and bandage was all grown over with new bark, but the wound covered with paint remains so still — did not cover over with bark as did that where I used the wax. *T. R.*

Worcester, Mass., April 30, 1871.

[We published last month a statement from an exchange, agreeing with "T. R.'s" experiment. We wish to add, that we have never tried coal tar for covering wounds, but we should be a little shy of it. We have known pine tar used with very injurious effect. It certainly preserves the wood, but the wound does not cover. — Ed.]

T. D., Garryowen, Iowa. — It would require more space than we have at present to give a full account of the bark louse, by which we suppose you mean the one which infests the apple tree, and which, from its shape, is known as the oyster-shell, or muscle-shell bark louse. The scientific name is *Aspidiotus conchiformis*, and we condense the following description from Harris's Insects

Injurious to Vegetation, Packard's Guide to the Study of Insects, and the American Entomologist, all of which we would advise you to consult for further information whenever you have opportunity, as its history is very curious and interesting. There is also an interesting article on the bark louse, in vol. ii. p. 85, of this Journal.

In the spring, the eggs are readily to be seen by raising the little muscle-shaped scales beneath which they are concealed. These eggs are of a white color, and in shape nearly like those of snakes. Every shell contains from thirty to forty of them, embedded in a small quantity of whitish friable down. They begin to hatch about the 25th of May, and finish about the 10th of June, in New England. The young, in their first appearance, are nearly white, very minute, and nearly oval in form. In about ten days they become stationary, and early in June throw out a quantity of bluish-white down, soon after which their transformations are completed, and the females become fertile, and deposit their eggs. These, it seems, are hatched in the course of the summer, and the young ones come to their growth, and provide for a new brood before the ensuing winter.

This insect multiplies with astonishing rapidity. The best time to attack them is when just hatched, and before they become stationary, that is, about the first of June, by syringing with strong tobacco water, scraping and soaping the bark, two parts of soft soap, and eight of water being mixed with lime enough to bring it to the consistence of thick whitewash. Or a solution of a pound of potash, or a quart of common salt in a pail of water, may be used. It has also been recommended to boil pitch or linseed oil with the tobacco or tallow, to keep it from washing off, and apply it early, so as to prevent the eggs being deposited. About two weeks after syringing, as first directed, the terminal twigs may be cut off and burnt, to destroy any that have escaped the syringing process, as they prefer to fix themselves around the ends and knots of such terminal twigs. They never attack rough bark. The lady-birds, which devour this as well as the native white species, should also be encouraged. This lady-bird is a little roundish beetle, about a quarter of an inch in length, black, with a red spot in the fore part of each of its wing-covers, and preys upon the newly-hatched bark lice in a most savage manner. Dr. Shimer has also discovered a mite, which sucks the eggs in autumn.

IDEM. — We thought our readers would get some new ideas from the chapter on grafting, which we published a year ago ; and we are glad to know that you were pleased with it. We will try, when the season for budding approaches, what we can do on that subject.

T. R., Worcester, Mass. — The best way to prevent moss from growing on pear trees, is to keep the trees thrifty. Not only insects, but all parasitic plants, like moss, are most likely to attack an unthrifty tree. The bark of the most vigorous tree will in time become rough, and then the moss is apt to find a lodgment ; and though a little will do no harm, if you dislike the looks, you can scrape it off without injuring the tree. Do not, however, scrape any more than is necessary to remove the moss.

TREE PÆONIES.

By Marshall P. Wilder, President of the American Pomological Society.

The Tree or Shrubby Pæony (*Pæonia arborea*) has, like the pear and camellia, been, for many years, one of my special pets. When I commenced forming my collection, forty years ago, there were but few varieties recognized in our catalogues except those originated in China, where this species is indigenous, and is known as the *Moutan*. With this plant, as with almost every other, hybridization had scarcely given an intimation of its capabilities in the production of new varieties. Since then many new and beautiful varieties have been produced in Europe as well as in this country.

What was then supposed to be impossible, — the production of other colors than the white with lilac tinge, of the original Moutan, or slight variations from it, — has been accomplished, and now we have numerous varieties produced by hybridization, embracing self-colored flowers, in all the gorgeous shades of rose, crimson, and even the royal purple. Many varieties have been originated by the French, Belgian, German, and English cultivators. In our own country some very fine varieties have been produced by Dr. Kirtland, of Cleveland, Professor Jackson, of Schenectady, and other amateurs. To those who are acquainted

with these beautiful plants, we need not say that, for brilliancy and variety of color, they, with the herbaceous pæonies, excel all other flowers of their season, and were they blotted out of existence, we know not where, in the whole range of the floral kingdom, a substitute could be found to produce an equal effect in the flower garden. The tree pæony gains additional value by flowering some weeks in advance of the herbaceous species, and when we consider its hardiness and adaptation to a northern climate, we are impressed with the importance of extending its cultivation, and increasing the number of fine varieties. It will flourish in any good, deep garden soil.

New varieties are easily raised by cross fertilization. The stamens of the variety to be impregnated should be removed as soon as the flower opens, and before its own anthers burst. As the pollen dries soon after the anthers open, it is difficult to obtain it in a fresh state. I have, therefore, resorted to the expedient of rubbing the anthers be-between the thumb and fingers, when they readily burst, and yield an abundance of pollen. This is transferred, with a camel's-hair pencil, to the stigma of the plant from which we wish to produce seed, the operation being repeated for several successive days, so as to be sure of securing the stigma in the right condition.

In this way plenty of seed may be obtained, which should be sown in a cold frame immediately after it becomes ripe. It seldom vegetates the first year, most of it coming the next spring. The plants may remain in the frame, with a slight covering of leaves in the winter, until they are two or three years old, when they should be transplanted into regular lines for proving. About the fourth or fifth year from sowing they will come into bloom. As a general rule, they will continue to improve in excellence as the plant attains age.

The flowering may be hastened by grafting the terminal shoots on the roots of the herbaceous pæony, which method is also used for multiplying a new variety. The operation is performed by cleft grafting, in August, as soon as the young shoots are sufficiently ripened at the base; but care should previously be taken to secure a stock of healthy tubers, in a growing state, in pots, to engraft upon, selecting healthy tubers, the size of a man's finger, with some fibres at the bottom. The grafts must be tied in with strong bass matting, or, which is perhaps better, narrow strips of cotton cloth, dipped in grafting wax. When grafted, the pots should be placed in a cool pit, or a frame, so as to sufficiently exclude the air until a union has taken place, when they may be planted in the ground, taking special care to cover them in the autumn from frost. This method is extensively practised with new

varieties in France and Germany, where large quantities are grafted and sent to market with shoots three or four inches long. These grafts, when planted in the ground, make roots from their own stem. When the plants become strong, they are propagated by division in the ordinary way.

The following are brief descriptions of some of the finest modern varieties: —

Osiris. — Dark, royal purple, double flower; remarkable for its unique and distinct color. Chinese.

Dr. Bowring. — Delicate rose, with remarkable foliage, not quite double. A Chinese variety.

Lord Macartney. — Bright rose, inclining to scarlet; double, fine. A Chinese variety.

Globosa. — Pure white, elegantly spotted with purplish crimson; stamens white, foliage peculiarly trilobed. Chinese.

Louis Mouchelet. — Deep flesh-color, darkest at the centre, very large, measuring nine inches across. Originated in Europe.

Elizabetha. — Rosy scarlet, surpassing in magnificence any other variety. The plant was imported twenty years since, from Frankfort on the Rhine, where it originated, at a cost of three hundred francs. Plant very strong, flowers very large, measuring ten inches across.

Zenobia. — Imperial purple, semi-double. A fine variety for bearing seed and crossing with other varieties of less distinct color. Chinese.

Leopold I. — Pure white, the base of the petals being touched with deep lilac. Very large flowers, and very strong plant. Though not quite double, it is a most magnificent flower, and probably the finest white in existence.

Rosea Superba. — Rosy scarlet, medium size.

Robert Fortune. — Rosy scarlet, medium size. A Chinese variety.

Cassoretti. — Bright rose-color, petals with finely-cut edges; one of the best of this color.

Salmonia. — A Chinese variety, of light rosy salmon color, the edges of the petals nearly white. Double and full. A most charming variety.

Grand Duc de Bade. — Lilac rose, deeper at centre. Double. One of the darkest of the lilac shades. A most distinct and excellent variety.

La Soleil. — Pure white, shaded at centre with markings of delicate salmon color.

Phenicia. — A full double, dark-lilac flower.

Violacea superba. — Resembles the above, but is of a deeper shade.

Carl V. — A double white variety, of fine cup form.

Marshall P. Wilder and *Edward S. Rand, Jr.*, two of Dr. Kirtland's seedlings, are among the finest varieties, but have not yet bloomed here.

[Having paid a visit to Mr. Wilder's place, for the express purpose of examining the collection of tree pæonies, of which he has kindly given us the above notes, we can testify to their splendor. Besides the kinds enumerated, we may mention a fine variety, resembling Elizabetha, and a rival to it, but of which the name was, unfortunately, lost. Another, of clear dark-purple color, had been crossed with the pollen of some of the best sorts, and was already showing fine seed capsules. The collection is very extensive, embracing all the varieties of distinction which could be procured in Europe, as well as Mr. Wilder's own seedlings. They occupied a square bed, containing about an eighth of an acre, and, when in full bloom, nothing can be imagined more gorgeous than the appearance which it presented. — Ed.]

ORCHID CULTURE. — II.

By John G. Barker, Cambridge, Mass.

In continuing our remarks upon orchids, we will first consider the Orchid House. Beyond a doubt, experience has proved that a span-roof house is the best, running east and west. The size must be governed by the extent of the collection intended to be kept. This house should have a partition in it, the upper part of which should be of glass, one part to be devoted to East India species, the other to such as are from the more temperate climes, the latter being kept ten or fifteen degrees cooler than the former; and when the Indian species are in bloom, their flowering season may be lengthened by bringing them into the cooler house.

Construction. — The house should be built of brick up to the plate. I do not think side lights are necessary, as light enough can be obtained from the roof and the ends, which latter should be of glass above the level of the plate. The ends may be made in two or more sashes, as is most convenient, and fastened in with screws; the roof should be of

sashes also; they should be two in length on each side of the roof; the lower one should be about two thirds the length of the roof, and fastened on with screws, and each alternate upper one should be made to slide, for the purpose of ventilation, which will be considered more fully under the head of air. I think glass, about ten inches by twenty, would be the best size, and the best double plate German glass should be used in glazing, as it is of the greatest importance that the glass should be clear. The sash bars and also the rafters should have a small grove down them on each side, which will carry the drip to the bottom of the sash, and prevent it dropping on the plants. Great care must be taken that the laps of the glass are very close, and the glazing done very thoroughly, it being of the greatest importance that the roof should be tight.

Arrangement. — The arrangement of the East Indian house should be by a platform around the sides; there should be a space of one inch between this platform and the front wall, to allow the hot air to pass up directly to the lower part of the glass, which is always the coolest. This platform must be made water-tight, so that it can hold about one inch of water, and must be filled up with fine pebbles, and the plants, during the growing season, should stand on the pebbles, with the platform filled with water, and during winter, or their season of rest, the water may be drawn off. This arrangement will not only produce moisture, but protect the plants from the wood-lice, which are so destructive to orchids. In the centre there may be an open tank, with a small pipe running through it, attached to the hot-water pipes, which will keep the water warm and produce a continual moisture, which will be very beneficial to the plants; and over this tank may be suspended those plants that grow in baskets and on blocks. This arrangement may be made to have a very pretty effect by arranging the sides of the tank with rock-work, and planting out ferns and lycopods, which, in the temperature of the orchid house, will grow very rapidly, and soon present a beautiful appearance. The tank need not be the full size of the centre of the house; you can have it any size you please; and in the room unoccupied by the tank, pedestals may be placed, made in the shape of fern pillars, if you wish, and planted with ferns or lycopods, and on the top some specimen plants placed, which would also add very much to the appearance of the house. In addition to this, if room permitted, I would procure a good size limb of some hard-wooded tree, — oak would be best, — and plant it in the ground, and on it I would fasten such orchids as would grow in the temperature of this house throughout the year.

The Mexican House. — The arrangement for the Mexican, or cooler house, may be the same as the other, with the exception of the tank. In its place should be a stage, or one broad platform, as occasion requires, according to the size of the plants. There is no necessity for the platforms in this house being made water-tight.

Heating. — When orchids make their annual growth, they then require a great amount of heat; and it is best that the season of growth should be so regulated that it will be between the months of April and September, when the days are long, and you have most sun to help you. At this time they require a great deal of moisture, and the new growth is less liable to rot than in dull days. But objections may be made that the new growth does not come uniformly; some will have a propensity to grow in winter. True; but by a little perseverance that can be changed just as well as grapes can be forced in April or May, or roses at New Year's; and when the habits are once changed, they become more fixed every season, and will remain so as long as the cultivator pleases.

I think it will be seen that heat can be economized very much indeed to have the growing season at the periods above named as far as possible. Now, the best way of heating, and easiest to be managed, is by hot-water pipes; and on the top of the flow-pipe, about every third length, should be a tank, that should be kept filled with water, and when the pipes are warm the heat will cause a gentle moisture which will rise among the plants, and be of great benefit to them.

NARCISSUS BICOLOR.

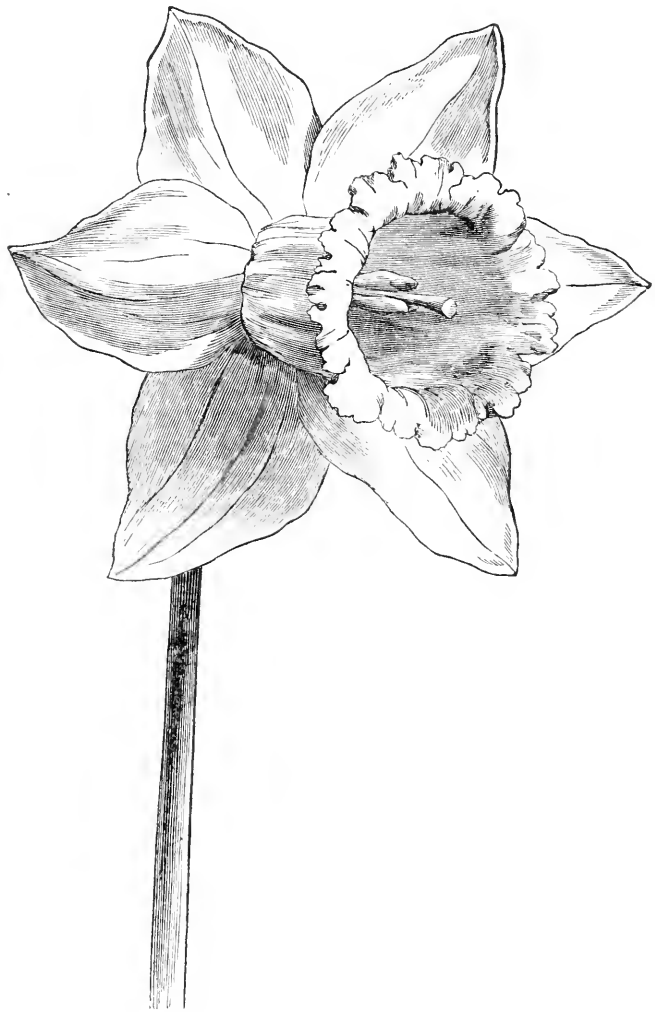
By John C. Hovey, Cambridge, Mass.

Among the many species and varieties of Narcissus now in cultivation, none are more worthy of a place in every garden than this.

It is a native of the Pyrenees, and although cultivated in English and French gardens for more than two centuries, is still rare, and but seldom found catalogued by florists.

The flowers are two-colored; the outside petals, or corolla, being sulphur yellow, and the crown, or trumpet, of a rich orange, thus making a very striking contrast. It flowers the middle of May; is perfectly hardy, and sweet scented.

It is particularly effective when planted in clumps, in a mixed border, or in masses, with *Narcissus major*. Two new hybrid varieties, a cross between *Narcissus bicolor* and *Narcissus Ajax*, have



Narcissus Bicolor.

been introduced from Europe the past season, under the names of Emperor and Empress, represented as having even larger and more showy flowers than the parents.

OVER-CROPPING.

By George Jaques, Worcester, Mass.

Near akin to the negligence by which trees are suffered to smother and deform themselves with superfluous wood, is the custom — almost universal in this country — of allowing them to carry an unreasonable quantity of fruit. This over-cropping, indeed, is one of the greatest, as it is one of the most obstinate evils that horticultural science is struggling to eradicate. Under the various artificial influences to which fruit-trees, in gardens and orchards, are subjected, they often overbear. The best cultivators, however, make it an inflexible rule not to allow any tree to carry so much fruit as to necessitate a propping up of the branches. But the number of this class of thorough practitioners is exceedingly small. All over the country, in fact, propping is the rule, and thinning of the fruit is the rare exception. The operation seems, it is true, to demand a certain sort of courage that only veteran cultivators can command. To cut off the outermost of the two or three clusters on every shoot of a grape-vine, to pull off half, or more, of the specimens from a fine Bartlett or Seckel pear tree, oppressed by the weight of its own generosity, requires *nerve*, such as can hardly be expected from raw recruits in the business. Still, so extremely satisfactory are the results of this operation, that, wherever it has been once resolutely begun, it never fails to be followed up in future years.

In the performance of this, as of other work among trees, a little experience proves more serviceable than a great deal of teaching. As a general rule, supported by the practice, as stated above, of the best cultivators, no tree should be permitted to retain any more of its fruit than it can carry to maturity without being tied up, or supported in any way. This, where trees are overloaded, necessitates a removal of from one fourth to three fourths, as the case may require, of the young specimens left growing after the fall of the blossoms. The superfluous fruit ought to be picked off in June or July. At the time of this first thinning, however, it is advisable to leave about double the quantity on the tree that it is intended shall ripen there. Going over the trees a second time, in August, the number of specimens should be finally reduced so as to complete the operation, taking care to select for removal all fruits that are wormy, deformed, badly situated, and unpromising. On dwarfs, and smallish standards, such a thinning out — with the fingers and thumb-nail, as the most convenient implements — may

be rapidly performed; but to go over a full-grown apple or pear tree in this way is a slow and rather tedious labor; still, where the cultivation has not been neglected in other respects, such thinning, in most cases, will *pay*, inasmuch as, properly done, it never fails to secure a fair crop of first quality, instead of a little larger quantity of very inferior fruit. But the effect of the operation on the future health and vigor of trees is of much more importance than any such improvement of their products; for a tree that has once "borne itself to death," — as the phrase forcibly expresses it, — very rarely, and only after a number of years, if ever, recovers from the consequences of its exhausted vitality.

This thinning process may be extended down, with the same advantages, among the smaller fruits, or even transferred, with marked favorable results, to flower borders and kitchen gardens; but land is too cheap and labor too dear in this country for such imitations of the practices of French and English gardeners. Those who are curious for further information on this subject, will find nearly all they desire to learn, in a long extract from a distinguished foreign horticultural writer, on page 181, in the September (1870) number of this Journal.

BUDDING.

The season for this operation, one of the most important in the propagation of trees, whether by the amateur who amuses himself with raising a few dozen for his own use, or by the nurseryman who grows them by the million, commences before the end of this month. We do not propose to give an exhaustive article on the subject, but only a few hints on some important points which are apt to be overlooked, especially by beginners.

The first trees to be budded are those which finish their growth earliest; and, in our experience, dwarf apple stocks have required attention before any others. Newly planted stocks will grow later than those which have stood a year or two, and consequently may be budded later. When the sap is flowing very freely, the bud is liable to be "drowned out," as it is termed, and budding must then be deferred until the growth is checked and the sap thickened. This is particularly the case with cherries, which, if budded when at the height of their growth, will fail in ninety-nine cases out of a hundred; while if postponed until a few

yellow leaves are noticed, the proportion would be reversed. The rule is, that trees should be budded in the order of their vigor, the least thrifty first, and the most thrifty last, and when many are to be budded a beginning should be made as soon as the buds to be inserted are ripe, that is, when the wood is sufficiently hard and firm.

It is commonly recommended, after making the horizontal and perpendicular cuts through the bark, to raise the bark with the handle of the knife, so as to insert the bud, but the stock *ought* to be in such condition that if the corners of the bark are raised a little with the point of the knife blade, the bud can be pushed down without using the handle at all. In this way the bark is raised just as far as is necessary, and no farther; while, if the knife handle is used, the bark is very likely to be separated from the wood, especially by inexperienced operators, farther than is necessary.

The horizontal cut is generally made squarely through the bark; but it will be found that the bud is inserted more easily, especially in stocks where the bark has become thickened, when the cut is made to slope downward. Sometimes when we have had occasion to insert a bud under a very thick bark, we have shaved off half or more of its thickness to advantage. Instead of pushing down the bud by means of the portion of the leaf stalk left on it, we have often effected this part of the operation better by sticking in the point of the knife a little way, just above the bud, the knife being held with the back of the blade downward, and a little slanting, so that the side shall bear gently against the bud, and thus pushing it down. Of course this is a somewhat delicate operation; but a clumsy-fingered man had better not undertake to bud at all. We prefer a budding-knife with a straight back, and the edge rounded at the end. It should be kept literally "as sharp as a razor."

We are decidedly opposed to the practice of taking out the wood from the bud as a general thing. Perhaps the union is a little more perfect, but we do not think the advantage is sufficient to compensate for the trouble and the risk of spoiling a large proportion of buds by losing the wood from their hearts. If the bud happens to be from a shoot which has finished its growth, the only way to remove the wood is to cut it out with the knife, and this we cannot advise under any circumstances. If the buds are very large, and the stocks small, and you do not mind spoiling a few buds, it may be well to take out the wood.

The best thing to tie in with is strips of bass bark, moistened with water. Take one of the strings by the two ends, one in each hand, and lay the middle flat on the slit in the bark just above the bud; then, by moving it from side to side a little, it can be worked slightly under

the bud. Then wind one end smoothly and neatly round, proceeding upwards till the horizontal cut is covered; then go back and cover the rest of the perpendicular cut, finishing at the bottom. It is of the highest importance to tie in the bud closely so as to exclude the air, and this can best be effected by tying as above described. It is a common but erroneous impression that the "budding," that is, inserting the bud, is much more important than the "tying;" but however well a bud is inserted, it will perish unless properly tied in, and it ought to be done as carefully and neatly as a surgeon would bandage a limb. Do not use too wide and thick strings. Beginners are much more apt to get their strings too large than too small.

For large stocks we have found an excellent plan to be to insert a graft at the same time and in the same way as the bud, but the horizontal cut should be on one side only of the perpendicular, so as to resemble an inverted L. Take a well-ripened shoot with four or five buds, and pare off one side for about two inches, making it taper smoothly and straightly to the end. Let there be a bud about midway of the cut. If the bark is very thick, cut away a little of it in a slanting direction above the lip to be opened. Then push down the graft under the bark on one side of the cut only, which, as it is much stiffer than a bud, can easily be done. Tie closely with a strong string, and do not mind bending the graft a little at the top of the cut in tying, if it is necessary to bring it into place. In this way we have grafted quince stocks an inch thick, which have the next summer made a shoot three feet in length from every bud. Besides being more easily inserted, the larger number of buds gives it a great advantage for a large stock, and if the end should be accidentally broken off, the bud below is as good as any — in fact, it combines the advantages of grafting and budding.

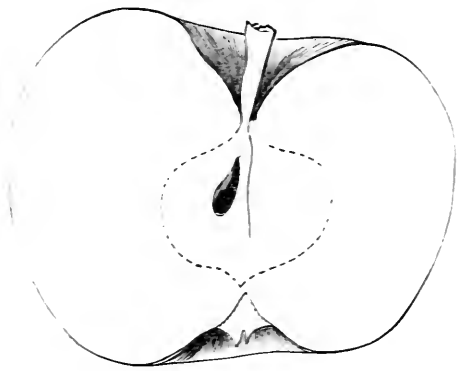
If the bud "takes," the portion of the leaf stalk left on will part and fall off naturally, at the base, just as it does in autumn, but if the bud dies, the whole will become dry and black, and the leaf stalk will adhere to the bud. If the stock grows very fast, so that the bandages cut deeply into the tree before the bud is united to the stock, they should be loosened and re-tied; but when the bud is firmly grown in, the whole tie may be removed by a cut on the opposite side. This will commonly be in two or three weeks after budding. If the bark still peels, any failures may then be mended, but a skilful workman, with good stocks and buds, ought not to loose one out of a hundred.

The heading down and after treatment must be left to a future occasion.

NEW APPLES.

By Dr. John A. Warder, President Ohio State Horticultural Society.

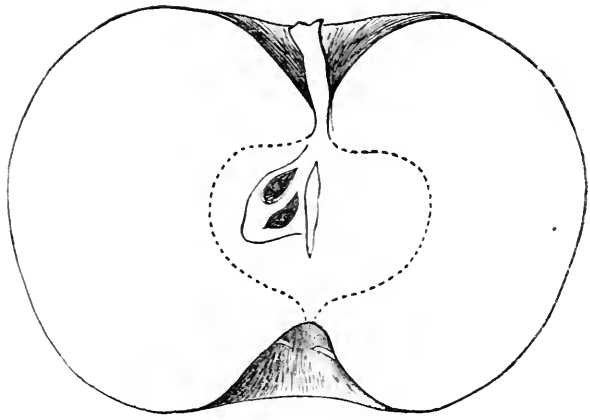
Holly. — This tree presents a beautiful appearance, being vigorous, healthy, rather thickly branched, and clothed with abundant foliage of a fine rich green: early: productive: fruit medium, flattened, regular: surface smooth, greenish-yellow, nearly covered with mixed red, and



Holly Apple.

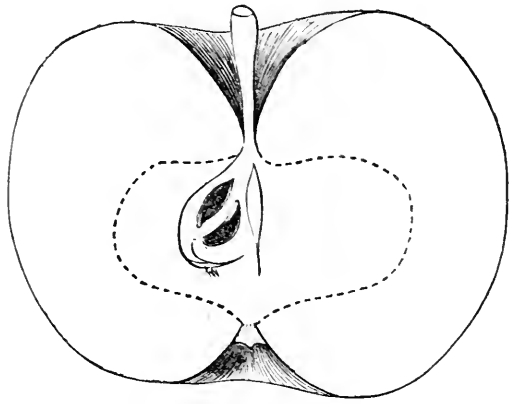
striped with bright red: dots minute: basin abrupt, folded: eye medium, closed; cavity wide, green: stem medium, thick or knobby: core small, regular, closed, not meeting the eye: seeds few, long, brown: flesh yellow, firm, fine-grained, juicy: flavor acid, aromatic. Use, table: quality, good: season, mid-winter.

Baltzley. — Tree received from Franklin Davis, Staunton, Va.: is healthy, spreading, open, early productive. Fruit large and handsome, flat, somewhat angular: surface smooth, yellowish-white, faintly blushed: dots small, scattered, white: basin rather deep, abrupt, wavy; eye medium, short, open; cavity medium, wavy, brown: stem medium, green: core small, irregular, not meeting the eye: seeds numerous, angular, brown: flesh white, firm, somewhat tough, juicy: flavor almost sweet, rich. Use, market and family: quality, good: season, October. As a market fruit, this variety will follow the Maiden's Blush, and promises to be equally valuable, though less elegant.



BALTZLEY APPLE.

Ogleby. — Trees received from Henry Robey, Fredericksburg, Va. Fruit medium, flat, regular; surface greenish-yellow, sometimes bronzed; dots medium, scattered, gray; basin abrupt, rather deep;



OGLEBY APPLE.

eye small, closed; cavity acute, regular, brown; stem medium, yellow; core wide, regular, closed, meeting the eye; seeds numerous, angular, brown; flesh light-yellow, breaking, juicy; flavor sub-acid, agreeable. Use, table; quality good to very good; season, mid-winter.

THE BUSSEY SCHOOL OF AGRICULTURE AND HORTICULTURE.

The farm of the late Benjamin Bussey, in Jamaica Plain, Massachusetts, comprising considerably more than two hundred and fifty acres, various in soil and exposure, and including some of the best land in the state, was left, by his will, to Harvard College, after the expiration of a life interest, which still subsists. He directed that it should be used by the college for purposes of practical instruction in agriculture and horticulture; and, in furtherance of this object, he bequeathed a large sum of money in addition to the land.

By an arrangement with the heirs of Mr. Bussey, the college has now entered into possession of that portion of the estate which he had designated as the site for the buildings of the proposed school. With the aid of the fund left by the will, the interest of which has accumulated to a large amount, the school will be begun at once. By taking this course the college hopes to ascertain the wants of the public, and the best methods of supplying them, and thus to enter eventually into full possession of the bequest, with a degree of experience and preparation which could be insured in no other way. The school is now organized with a corps of thirteen instructors, and the necessary buildings are far advanced towards completion. The courses will begin on the 28th of next September.

The school differs from others established in various parts of the country, in confining itself wholly to agriculture, horticulture, and studies which have an immediate bearing upon them. No general education will be attempted. Students are not received till the age of seventeen, by which time they are expected to have acquired the rudiments of knowledge elsewhere. The following is taken from the circular announcing the establishment of the school: —

"The School of Agriculture and Horticulture, established in execution of the Trusts created by the will of Benjamin Bussey, will give thorough instruction in Agriculture, Useful and Ornamental Gardening, and Stock-raising. In order to give the student a sound basis for a thorough knowledge of these arts, the School will supply instruction in Physical Geography, Meteorology, and the elements of Geology, in Chemistry and Physics, in the elements of Botany, Zoölogy, and Entomology, in Levelling and Road-building, and in French and German.

"The regular course of study to be pursued by candidates for a

degree will fill three years. The instruction of the first year's course will be given at the Lawrence Scientific School, in Cambridge, and students of the first year must live in or near Cambridge. The instruction of the second and third years' courses will be given at the Bussey Institution, and students of the second and third years must live near the Institution, which is situated in the town of West Roxbury, near the village of Jamaica Plain, about five miles south-west of Boston, and close to the Forest Hills station on the Boston and Providence Railroad.

"Candidates for admission to the first year of the regular course of the school must be at least seventeen years of age, and must present testimonials of good moral character; they will be examined in Arithmetic, Algebra, as far as quadratic equations, English Grammar, and Geography. Candidates for admission to the second year of the regular course must be at least eighteen years of age, and must present testimonials of good moral character; they will be examined upon the studies of the first year in addition to the above-mentioned subjects."

Besides the regular course of three years, students are admitted to special courses on Farming, Horticulture, Agricultural Chemistry, Domestic Animals, and Entomology. To three of these courses, viz., Horticulture, Agricultural Chemistry, and Entomology, female as well as male students are admitted.

The Bussey Institution will serve not only for purposes of instruction, but also for experiment. It will investigate the nature and effects of artificial fertilizers, the most sure and economical methods of producing them, their application to various soils, and their influence on different crops; the best modes of regenerating exhausted soils, and improving bad ones, with other points where science may be brought to bear with advantage on subjects of practical agriculture. By a series of experiments, aided by analysis, it is hoped to arrive at a precise knowledge in relation to chemical manures, and point out to cultivators how and when they may be used with safety and advantage.

The horticultural department of the school will be a prominent feature in it. Special attention will be given to the art of propagating plants, and of obtaining new varieties by hybridization and other methods. The horticultural courses will be open to both sexes, and students are invited to make use, to any extent they may desire, of the facilities afforded for the practice of horticultural operations. The instruction will be of a practical character, and the affording of opportunities for exercising observation and acquiring manual skill will be an essential part of it.

The single aim of the Bussey Institution will be the advancement of rural science, with no reference to ulterior objects of any kind.

Those wishing for information as to the arrangement of the courses, the names of instructors, fees, expenses, etc., will find it in the circular before-mentioned, which may be had on application to James W. Harris, Secretary, Cambridge, Mass. **

THE PRESIDENT WILDER, AND OTHER STRAWBERRIES.

By Samuel Miller, Bluffton, Mo.

As the Journal has had a hand in disseminating the above-named berry, I deem it will interest you to learn how it has done at Bluffton.

It is of large size, good color, firm enough for carrying well, and in quality No. 1. The plant is vigorous, and promises sufficient productiveness to satisfy any one.

The *Nicanor*, for home use, I deem a most valuable variety — second to none in quality, and immensely productive. When grown in hills it is of fair size, but if left to run in a mass, is small. It will hardly become a market berry of much note here in our hot climate, but no amateur should be without it.

Napoleon III. is a most remarkable strawberry here. From some accounts I doubted its being worth much, but have been most agreeably deceived. Its somewhat dull color may be a little against it, but in every other respect it is a superb fruit. For a medium to late, I call it among the very best, all things considered.

Charles Downing. This, with me, is a disappointment. For the noble name it bears I wish it were better. My chief objection to it is, that while it looks ripe on the upper side, it is white underneath, and not much flavor about it.

Boyden's No. 30 is far superior with me, and is well worth cultivation.

May 27, 1871.

NOTES ON THE JUNE NUMBER. — *Management of Fruit Trees that bear every alternate Year.* — Mr. Todd's principles are undoubtedly correct and well stated, but I want to know a little more about his method of applying them. What does he mean by "whipping off" the blossoms? I must confess that to me it is a new operation in horticulture. Does he actually take a horsewhip and flagellate the tree till half the blossoms are removed? If this is his meaning, I must decidedly object to it, for the reason that he will be sure to take of all the leaves with the flowers. Look at the cluster of flowers carefully, and you will find just back of them a bunch of leaves produced from the same bud, and when a tree is in full bearing these comprise the greater part of the leaves on the tree. Now the only way to remove these blossoms and save the leaves is to pinch off the blossoms carefully, and this is the way I have done, though if any one object that this would take too much time, I must admit that it does on large trees, and my advice is, if you want to change the bearing year of your trees, begin while they are young, and train them in good habits. But I do not think I could possibly do such a barbarous thing as to flog my innocent apple trees until I had divested them of all the blossoms and leaves too.

Scraping Apple Trees. — Sound doctrine, Mr. Editor, on that subject, and there is need of it, too, for many an orchard has been injured by scraping off the rough bark, leaving the tender, inner bark exposed to the sun and all the changes of the weather. Mr. Needham has treated us to another subject besides that included in the title of his article, and though I have never tried manuring apple trees with pomace, the theory is good, and it is corroborated by Mr. Todd, whom I have criticised above, in his Apple Culturist. *Bismarck.*

Destroying the Curculio. — We are indebted to the Benton Harbor Palladium for a copy of an Essay on the Natural Habits and Mode of Destroying the Curculio, delivered by W. B. Ransom, St. Joseph, Michigan, before the Berrien County Horticultural Association. Mr. Ransom will be remembered as the discoverer of the method of trapping the curculio by means of pieces of bark, bits of board, stones, etc., placed at the foot of the tree. He is still confident in the efficacy of his method, and as it may be new to many of our readers, we will say, that to be successful the ground must first be made perfectly smooth all round the base of the tree for a distance of two feet and a half, so as to have no hiding-place in the ground for the insects. Then place all round the collar of the tree, close to it and close to the ground, pieces of chip, bark, board, lath, rags, old leather, or similar material, that will serve for a hiding-place. Mr. Ransom likes best pieces of old dead black-oak bark, from two to four inches square, and that which has fallen off, and worn the moss and little fibrous bark off, so as to have no cracks for the curculio to hide in, should be chosen. One side is concave; the edges are generally uneven, so that when put up to the tree they give holes for the beetle to crawl under next to the tree when descending. This hollow in the inner side of the bark, when placed on the smooth ground, gives a sufficient vacuum for them to attach themselves to the bark and just clear the ground, which they seem to prefer. The traps want but a small space beneath, say a quarter of an inch, and all the edges close to the ground only just so that a curculio can crawl under it in several places. Mr. Ransom prefers bark because it has a concave side, and does not warp with the sun, while most other traps warp, and leave the edges too high and the centre too close to the ground. This is the case with pieces of board, lath, chips, etc. Corn-cobs are objectionable, as affording hiding-places from which it is difficult to dislodge the insects in order to destroy them. Observation and experience will teach any one to succeed. The traps must all be set over after a rain, as it closes the edges with dirt washed up around them. The traps must be examined every day and the curculios killed. They will generally adhere to the trap, but may often be found on the ground underneath.

Though Mr. Ransom believes in the superiority of his method, he makes no objection to following it up with catchers, sheets, and any and all means that will destroy the curculios; but says, "Let all these be used! Do not discard any means that kills a single curculio!" And so say we.

The Mountain Laurel (*Kalmia latifolia*), known also as Calico-bush or Spoon-wood, is one of our most ornamental flowering shrubs. It has been generally thought difficult of cultivation, but we have seen at Messrs. Hovey & Co's. nurseries, Cambridge, Mass., a display of flowers far exceeding in beauty any we have ever seen growing wild. The plants were the remains of a lot of nursery stock which had grown up ten or fifteen feet high, and at the time we saw them were covered with flowers, many of which were remarkable for depth of color, — far more brilliant than the wild ones, and from this down through every shade to pure white. The soil was well adapted to their growth, being naturally boggy, but they had no more shade than they afforded each other.

TRAPPING THE SQUASH BUG. — I have found the "Ransom Curculio Trap" of more service in catching the stinking squash bug than the little Turk, for which it was specially recommended. I lay two or three bits of shingle or thin board near the hill of plants, the ground being a little rough so that the bugs can crawl under them, as they will do every cool night, and on turning over these covers early in the morning the bugs can be easily crushed with the sole of the boot or with a flat stick.

For striped cucumber bugs and cut-worms I have found no remedy so easy and efficient as sprinkling over and around the plants sawdust that has been saturated with carbolic soap-suds. I use a pound of the Plant-Protector Soap (as sold by Bowman & Blewett of New York), dissolved in six or eight gallons of water; this will saturate two or three bushels of sawdust. Care must be taken not to use it dripping wet, as in that case the liquid will injure the plants; but if only moist or damp it will do no damage, if used in moderation. As a protection from the ravages of cut-worms this remedy is quite valuable; a little of the sawdust dropped around each plant once in three or four days affording complete security. *M. B. Batcham.*

LEAF BLIGHT IN PEAR TREES. — W. Cunningham, Summit, Miss., states in the Rural Southland that he has found gypsum, sprinkled freely on the trees affected, early in the morning when wet with dew, to check the disease in some, and completely renovate the foliage in a short time in all. The kinds most subject to leaf blight are Glout Morceau, Seckel, Flemish Beauty, and Swan's Orange.

PEARS IN MARKET. — To show the predominance which the Bartlett has attained as a market pear, Mr. Parker Earle, in his report on pears to the Illinois Horticultural Society, says some of the Chicago dealers declare there are but two kinds of pears, — "Bartlett pears" and "Pears;" and they say the last variety don't amount to much! Fruit dealers in these parts are not remarkable for pomological knowledge, but they are not often quite so bad as these Chicago gentlemen.

GRAFTING GRAPE VINES. — The Pleasant Valley Fruit and Vine Reporter describes a new method of grafting the grape. Instead of splitting the stock, a double saw is used to cut a groove in one side, in which is inserted a scion, cut by a double bladed knife so as to fit exactly. The stock should be sawed off a little below ground, and after the scion is set the whole should be slightly covered with earth and mulched with sawdust. This plan is known as Wagner's method, and by it Mr. Wagner grafted a vineyard of an acre and one fourth of Catawbas successfully with the Iona, several of the vines making eighty and one hundred feet of good well-ripened wood. The operation was performed from early spring to late in June with equal success, but the early grafted made better growths and perfected its wood earlier.

SIRUP FROM SWEET POTATOES. — It is said that three hundred and fifty gallons of good sirup can be made from one acre of sweet potatoes.

Horticulturists visiting Boston, — and all horticulturists ought to visit Boston, — should call at once at the Massachusetts Horticultural Society's Hall, on the corner of Tremont and Bromfield Streets. In the Library Room, which is open during business hours *every day*, they will find one of the best collections of horticultural books in the world, free to their examination, and in Mr. Buswell, who is Treasurer, Librarian, Superintendent, Corresponding Secretary, and housekeeper generally to the Society, we can assure all who do not already know him, they will find a most courteous and obliging gentleman, ready to give them any information or do them any service in his power. We say this, because we have known of gentlemen interested in horticulture who have derived far less of pleasure and profit from a visit to Boston than if they had on their arrival put themselves in communication with some one who could advise them how to make the most of their time. Of course we shall always be glad to see our friends, among whom we count all the readers of the Journal, and all other horticulturists (they all ought to be readers of the Journal), at our office, — indeed, they can visit both places very easily, as they are not far apart.

A free horticultural exhibition is held in the hall every Saturday, from the first of June until the annual show in September, excepting the Saturdays preceding and following the rose show on Tuesday and Wednesday, the 20th and 21st of June. At these weekly shows one is sure to see specimens of the newest and best varieties of fruits, flowers, and vegetables grown by the best cultivators. Indeed, there is hardly a Saturday through the year, even though the hall is not opened for a formal exhibition, but something worthy of attention is brought into the library room.

It is the desire of the Society that all the facilities for the study of horticulture afforded by its rooms should be made as widely useful as possible, and therefore it would be pleased to have this invitation circulated by its friends, and especially by such horticultural editors as may be disposed to notice it.

Evergreens. — At the April meeting of the Warsaw, Illinois, Horticultural Society, the President recommended for general cultivation for shelter and ornament the Norway Spruce, White, Scotch, and Austrian Pines, Balsam Fir, and Hemlock. For shelter belts nothing equals the Norway spruce. The Hemlock, which he considers (as we do) the most beautiful of all evergreens, and has found, contrary to the general impression, not more difficult to transplant than other evergreens, seems to fall a victim to severe droughts and variable winters oftener than others. A gentleman who has had much experience in the cultivation of evergreens in Eastern Massachusetts, lately remarked to us that he had found the hemlock would not stand in exposed situations as well as other kinds.

Healthfulness of Apples. — An eminent French physician thinks that the decrease of dyspepsia and bilious affections in Paris is owing to the increased consumption of apples, which fruit he maintains is an admirable prophylactic and tonic as well as a very nourishing and easily digested article of food. The Parisians devour one hundred millions of apples every winter, that is, they did before the war. *Home and Health.*

THE CURRANT WORM ONCE MORE. — Our correspondent, Mr. George Cruickshanks, of Whitinsville, Mass., writes us that the whale-oil soap and kerosene mixture which he recommended in the July and September numbers of our last volume (page 23 and page 176), for destroying the currant worm, has proved equally effectual this year. The worms first appeared on the 20th of May, and on the 22d were plentiful on part of the bushes, but in two hours after applying the solution were nearly all dead. Mrs. Paul Whitin, who has given it a thorough trial, says it ought to be known by every one who grows currants, for it not only kills the worms, but cleans the bushes of other insects and invigorates the plants, as is proved by the fine show of fruit this season. As many of our readers have not our last volume, we republish the recipe here. "Five pounds of whale-oil soap and one wine quart of kerosene with twenty-five gallons of soft water. Stir the soap and kerosene till thoroughly mixed, add two pails of hot water, stir till the soap is dissolved, then add the balance of the water cold, when it is ready for use. Apply with a syringe with *force* in bright sunshine. I do it in the middle of the forenoon. Since I have used this solution I have had but few currant worms after three applications in bright sunshine. The sun dries the liquid on the leaves, whereas if applied in the evening, as is the custom with many, the falling dew gives the worm a chance to revive, so as to go on with its work of destruction the following day."

THE EFFECT OF SOD ON THE TEMPERATURE OF THE SOIL was studied by Malaguti and Durocher. They observed that it hindered the warming of the soil to about the same extent as a layer of earth of three inches depth. Thus a thermometer four inches deep in green sward acquires the same temperature as one seven inches deep in the same soil not grassed.

How Crops Feed, by Prof. Johnson.

THE COMPASS PLANT (*Silphium laciniatum*). — This plant possesses the peculiarity of holding its leaves in such a position that the edges point north and south, so that it is used by the settlers on the western prairies, when lost in dark nights, to get their bearings. The possession of this property has been denied, but careful observation has shown that it certainly does possess it when young, though when the leaves become large and heavy, so as to be borne in different directions by wind and rain, they have not always the power of regaining the position lost. It was suggested by Dr. Gray that this position was taken as the one in which the two faces would obtain an equal amount of sunlight, and we are informed by W. F. Whitney, in the American Naturalist, that this suggestion has been found correct. It is well known that the two sides of a leaf usually differ in structure, that the number of *stomata*, or breathing holes, is much greater on the under than the upper surface, and that the tissue of the upper is denser than that of the lower stratum. Careful examination with the microscope has shown that in the Compass Plant the number of stomata in the upper and under surfaces of the leaves is equal, and hence they seek an equal exposure to the light; — the mean position of equal exposure, in northern latitudes, being that in which the edges are presented north and south, the latter to the maximum, the former to the minimum, of illumination.

American Pomological Society. — The following premiums have been generously offered by the societies and individuals named below, to be awarded at the meeting in Richmond on the 6th, 7th, and 8th of September next, subject to the general rule of restriction, where objects are not deemed worthy of the same. All fruits must be grown by the exhibitor.

Packages of fruits, with the name of the contributor, may be addressed to the "American Pomological Society," care of H. K. Ellyson, Secretary Virginia Horticultural and Pomological Society, Richmond, Va.

The Virginia Pomological and Horticultural Society offer one hundred and fifty dollars, at the disposal of the American Pomological Society.

The Virginia State Agricultural Society offer one hundred dollars for the best collection of Apples, Pears, Peaches, and Grapes.

Ellwanger & Barry, of Rochester, N. Y., offer fifty dollars for the largest and best collection of Apples, not less than fifty varieties, three specimens each.

Marshall P. Wilder, of Boston, Mass., offers fifty dollars for the largest and best collection of Pears, not less than fifty varieties, three specimens each.

Charles Downing, of Newburg, N. Y., offers fifty dollars for the largest and best collection of American Grapes, not less than twenty varieties, three bunches each.

Thomas P. James, of Philadelphia, Pa., offers thirty dollars for the largest and best collection of Peaches, not less than ten varieties, of six specimens each.

General R. L. Page, Norfolk, Va., offers ten dollars or a medal for the best half bushel of the Flowers Grape.

G. F. B. Leighton, Norfolk, Va., offers twenty dollars or a medal, at the disposition of the American Pomological Society.

C. D. Barbot, Norfolk, Va., offers twenty dollars or a medal for the best dozen bottles of Scuppernong Wine.

L. Berkley, Norfolk, Va., offers ten dollars or a medal for the best dozen bottles of Flowers Grape Wine.

W. H. C. Lovett, Norfolk, Va., offers ten dollars or a medal for the best Dried Figs, cured within the territory of the society.

Hon. John B. Whitehead, Norfolk, Va., offers twenty dollars or a medal for the best half bushel of Scuppernong Grapes.

W. S. Butt, Norfolk, Va., two premiums of five dollars each or medals, — one for the best Figs, the other at the disposal of the society.

H. M. Smith & Co., of Richmond, Va., offer ten dollars or a medal for the best half bushel of Cider Apples.

Downward, Anderson & Co., of Richmond, Va., offer ten dollars for the best twelve bunches of the Norton Grape.

Charles F. Wortham & Co., of Richmond, Va., offer ten dollars for the best twelve bunches of Delaware Grapes.

S. Zstelle, of Richmond, Va., offers five dollars for the best twelve specimens of Peaches.

Randolph & English, of Richmond, Va., offer five dollars at the disposal of the society.

The Southern Fertilizing Company offer twenty dollars, at the disposal of the society.

The above Figs, Grapes, and Wines, entered for medals, to be the property of the society, for the use of members residing in those localities where they are not grown.

It is also expected that other premiums will be added to the above list.

Persons desirous of becoming members can remit the admission fee to Thomas P. James, Treasurer, Philadelphia, who will furnish them with the transactions of the society. Life membership, ten dollars; biennial, two dollars.

Influence of the Graft on the Stock. — We saw a short time ago at the Cambridge Botanic Garden an instance of the influence of the graft on the stock mentioned in our June number. *Abutilon Thompsoni* had been grafted on a green-leaved stock, and the stock had sent out far below the graft a shoot with the leaves variegated like *A. Thompsoni*.

An Anonymous Note, criticising some of the prize regulations and the composition of the committees of the Massachusetts Horticultural Society, has been received at the office of the Journal. If the writer will send us his name we will consider the propriety of complying with his request; until then we cannot.

The Girdled Peach Orchard. — Our readers will doubtless recollect that the Martin Green peach orchard, at Benton Harbor, Michigan, has been girdled five times, but the damage has been repaired with the help of the neighbors. This year the operation has been repeated, and we learn from the Jackson (Mich.) Patriot that the operator has been caught and safely lodged in jail. He was employed in a bakery in St. Joseph, and his name is William Cornell. He had loaned Green $1500 some years ago; Green failed, and Cornell lost his money — the savings of a lifetime of hard labor. He fancied the sale of the orchard by Green to Martin G. Hunter was a bogus transaction, and sought revenge by girdling Hunter's trees, planted by Green.

Tobacco for Squash Bugs and Cherry Trees. — Mr. J. P. Whiting, of Detroit, raised some squashes and cucumbers last year in his cherry orchard, and used tobacco-dust plentifully on the vines to banish the squash bug, striped bug, etc. The insects were destroyed, and so were the cherry trees; not one of the latter is now alive. *Western Rural.*

Tree-planting in Nebraska. — According to the Blair Register, tree planting in Nebraska is prosecuted at a lively rate. One day sixteen thousand young trees passed through that town to farmers farther west. A company of Swedes had contracted for twelve thousand cottonwoods to set out on their farms. This tree planting is now a regular routine of agricultural settlement, and cannot fail to produce the most beneficial effect upon the climate and productive power of that young state.

Gum Trees. — J. T. Stratton, in addition to his seventy acres of gum trees, has this year set out sixty-five acres more, between the San Ramon and Castro Valley roads. This is the largest gum tree farm in the state. *Pacific Rural.*

Premiums of Horticultural Societies. — One of the most flourishing societies in this country is the Worcester County (Mass.) Horticultural Society. We have just received the list of premiums offered at their annual exhibition on the 19th, 20th, 21st, and 22d of September, which is extremely liberal, amounting to about one thousand dollars. Among the "single dishes" of pears for which premiums are offered, we notice, besides the standard varieties, the Durandeau, which is not even mentioned by Downing, but which has no doubt been found valuable by the Worcester pear growers.

We noticed in our May number the offer by the Pennsylvania Horticultural Society of a premium of one hundred dollars for the best collection of fruit, from the proceeds of Hon. M. P. Wilder's lecture before the society, on California. Besides this, W. L. Schaffer, president of the society, offers a premium of thirty dollars for a display of apples; Charles Downing, two volumes of his great work on fruits as premiums for pears; Robert Cornelius, of Philadelphia, fifty dollars for a new hardy native grape for table use; J. E. Mitchell, of Philadelphia, ten dollars for the best bunch of foreign grapes; Thomas J. Pullen, of Hightstown, N. J., fifteen dollars for the best six varieties of peaches; George E. Waring, Jr., of Newport, R. I., ten dollars for the best twelve Trophy Tomatoes, and five dollars for every perfect specimen of two and one half pounds weight; Peter Henderson, Jersey City, N. J., three sets of Practical Horticulture and Gardening for Profit, for the best displays, by practical gardeners, of flowers, fruit, and vegetables; J. S. Houghton, Philadelphia, ten dollars for the best dish of twelve specimens of pears, to include any number of varieties, and Samuel Loag, Philadelphia, ten dollars for the best display of canned fruit and vegetables.

These are all in addition to the regular list of premiums, from the society's funds, which is very full, especially for plants and flowers at the monthly exhibitions in the early part of the season. The whole amount offered by the society is more than fourteen hundred dollars. From the nature of the case there is much of sameness in schedules of premiums from year to year, but we notice in that of the Massachusetts Horticultural Society a prize, a little out of the common course, of five dollars for the best fifty strawberries of any variety, to be shown in a single layer on the society's dishes. We shall be disappointed if this does not bring out some big berries. The funds of this society enable it to offer liberal premiums, and the amount appropriated this year for Gardens, Greenhouses, &c., is $400; Fruits, $1650; Plants and Flowers, $2,000, and Vegetables $700; total, $4,750. This does not include the "Prospective Prizes" for new fruits, flowers, and vegetables, amounting to $740, in premiums of from $30 to $60 each, nor those offered by H. H. Hunnewell, Esq., for Hardy Azaleas, Hardy Rhododendrons, Roses, and Evergreens, and for the estates which shall be best laid out and planted and best kept for three years, amounting in all to between five and six hundred dollars. Nor does it include the "Whitcomb Premium" of $200 for the best seedling potato, which we have before mentioned.

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

CALOCHORTUS LEICHTLINII. — It is difficult without a colored plate to give an idea of the beauty of the different species of Calochortus in their rich colors

CALOCHORTUS LEICHTLINII.

of white, purple, yellow, etc. They have been described as difficult of cultivation; but to say that a plant is difficult to cultivate, is generally to say that the

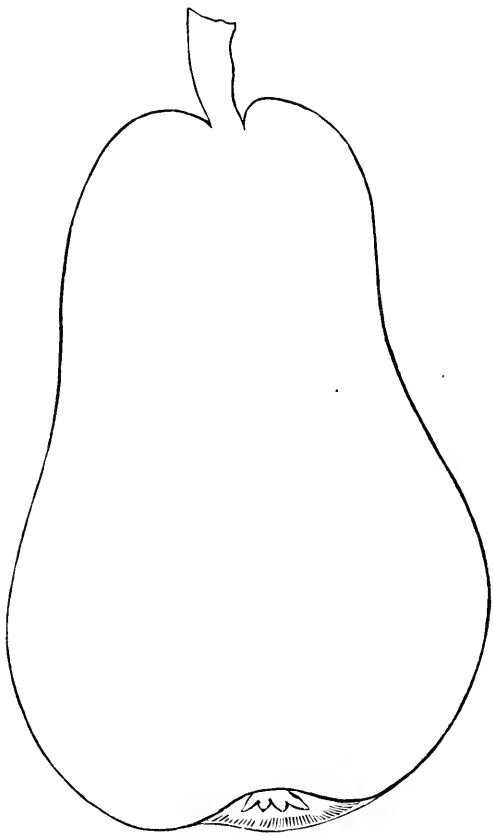
true method of cultivation is not yet known, and it is worth some study to find out how to grow so beautiful a genus successfully. It is believed that some of the species have been lost from neglect during their long dormant or flowerless season. "The present species was discovered by M. Roezl, in the Sierra Nevada of California, and was transmitted by him to M. Max Leichtlin, of Carlsruhe, after whom it has been named by Dr. Hooker. It is a bulbous plant, with linear glaucous grass-like leaves, and the flower stalks bear from two to three flowers, shown of the natural size in our illustration. The calyx consists of three lanceolate sepals, of a greenish color streaked with red. The petals are pure white, with a purple spot at the base on the inner surface, recalling that of some of the varieties of the Althea frutex. The bark of the petals is traversed in the centre by a reddish stripe along the midrib. The flowers, says Dr. Hooker, open almost in pairs at a time, and last for several days in perfection. So beautiful a plant is likely to become an established favorite." *Gardener's Chronicle.*

THE SWEET VIOLETS are among the most charming little gems of the spring garden, and they will grow almost anywhere, provided they get pure air; but what they most delight in is a rich, deep, loam soil, with liberal soakings of manure-water during the flowering season. The following are a few of the most distinct: *King of Violets*, an improvement on *arborea*, dark violet, a good grower, free bloomer, and fit for green-house or out-door culture. *Reine des Violettes*, blush-white, very double and hardy, a free bloomer; will do either in-doors or out. The *Giant* and the *Czar*, if not the same, are very much alike; both have large flowers, with long stalks, which make them very valuable for either bouquets or vases. *Rubro-plena*, double red or copper-color, very distinct, hardy, and a free bloomer. *Arborea alba*, tree habit, pure white, one of the best for in-door cultivation, as it likes a little protection. *Devoniensis*, in bloom the whole season, and has a long flower stalk, which makes it valuable for gathering; is of a light violet color. *Neapolitan*, one of the most beautiful, second to none, remarkably sweet-scented, with charming pale-blue flowers. These are all worthy of general cultivation. *Florist and Pomologist.*

EUCALYPTUS LEAVES, for dressing wounds, were tried at a hospital in Cannes, instead of lint. The leaves have a catty smell; they are merely laid on the wounds. The balsamic nature of them not only cures, but after a few hours all the unpleasant odor of the matter ceases. *M. J. B., in Gardener's Chronicle.*

CUTTING ASPARAGUS. — The following paragraph from the Florist and Pomologist expresses our ideas exactly, except that, to prevent bleeding, we would cut just below the surface of the ground, and afterwards break off the tough butt. It is no harm to let it grow a foot high. "Don't cut asparagus when intended for home use, but let it grow to the height of six or eight inches, and then break it off at the proper length; it is brittle as an icicle. It is true, it has no handle; but what is so gathered can all be eaten, which is more than can be said for the article sold in the markets."

WILLIAMS D' HIVER PEAR is of first size and quality, and comes into use from December to February. The fruit is blunt, pyriform, but variable in outline, much swollen at the base, and drawn in near the top and somewhat bossed. Skin clear yellow, finely dotted and veined with the same in the basin of the eye, with lightish gray about the stalk and on the face exposed to the sun. Stalk short, strong, and thick, set rather obliquely and often to one side of the axis. Eye medium size, half-closed and slightly sunk. Flesh white,



WILLIAMS D' HIVER PEAR.

very fine and very melting; juice excessively abundant, sugary, acidulated, with a fine, fresh, and savory perfume. The tree is a strong grower, and it succeeds well upon the quince. It was raised by M. Leroy, of Angers, from whom I received it in 1869; it fruited here in 1870, and the accompanying sketch was made from one which ripened Dec. 20. The tree bears abundantly, and deserves to be much cultivated; it fruited for the first time at Angers in 1862.

J. S. Merrit, in Gardener's Chronicle.

CURRANTS. — Allow me to mention a few more red currants, and to offer a few notes on a novel system of growing them, which is here very generally admired.

Knight's Sweet Red. — The sweetest currant grown. It is of a distinct habit from other varieties, making its shoots nearly perpendicular, never horizontal. The berries and bunches are of fair average size and of good color.

La Versaillaise. — A splendid sort for exhibition or market purposes, producing very long bunches, with twenty or more berries on a bunch when well grown; it is more acid than several of the varieties, but it always commands a good price in the market. This and the Cherry currant are the best for exhibition.

Bang Down. — A very free fruiter, and a good bearer, having very compact bunches.

Sanders's New Red. — A fine free-grower, and a good bearer, but not equal to the foregoing.

Great Eastern and *Garibaldi* are two fine varieties, raised in the neighborhood of York. I have not sufficiently tested them to say much on their merits.

In black currants, I have succeeded in raising one named *Black Prince*, which surpasses all others for flavor, being nearly devoid of the peculiar acidity for which this fruit is remarkable. Many who have tasted it compare it to the Black Hamburg grape. Its superiority is found in a moment on tasting it, when fully ripe. It is a free grower and bearer, equal to or larger than *Ogden's Black Grape*, but rather tender in the bloom, and liable to be cut with the spring frosts.

I have taken great interest in the red currant for years, and grow fifteen varieties. I adopt with them a method of training peculiar to myself, namely, the pillar form, and which is much admired when in fruit, since the trees take up little room and fruit freely. The pillars are raised in the following manner: I select good, well-grown shoots for cuttings, leaving the leading bud and five or six others; these latter form side shoots, while the leader goes upright, forming branches as it advances, which latter are cut back every season to one or two buds. The plants require tying to a stake. When they get about twelve or fourteen inches wide, I cut the new wood close; and in the case of those from which I wish to exhibit, I pinch off all the shoots close, at the latter end of June. This makes a wonderful difference in the size of the fruit, and they are easier to shade with mats, when wanted for a later season.

White currants I also train in the same way, and find that they generally bear finer fruit than on the old system, while they are not liable to be beaten about by storms. They take rather longer to raise in this way. I have several plants six feet high. *John Walker, Manchester, in Florist and Pomologist.*

THE Editors of "Tilton's Journal of Horticulture" cordially invite all interested in the various branches of horticulture to send questions upon any subject on which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to inquiries in regard to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to horticulturists.

We would especially invite our friends to communicate any little items of experience for our "Notes and Gleanings," and also the results of experiments. Such items are always readable, and of general interest.

We must, however, request that no one will write to the contributors to our columns upon subjects communicated to the Magazine.

Anonymous communications cannot be noticed: we require the name and address of our correspondents as pledges of good faith.

Rejected communications will be returned when accompanied by the requisite number of stamps.

N. B. — Heading down a peach tree three feet high to ten or twelve inches, and cutting off all the side branches, is pretty severe discipline — needlessly so, we should say. To be sure you could cover it up; but it seldom happens that anything more than the ends of the shoots are winter-killed, and it is easy to cut them off, and save all the rest. After a dry season, like the last, the wood is likely to be well ripened, and consequently in little danger of winter-killing. We would not pinch the ends of the shoots at present; but later in the season, if they threaten to grow too late, they may be pinched to advantage so as to check their growth and ripen the wood.

T. P., Cedar Rapids, Iowa. — The Oleander is classed by botanists in the *Apocynaceæ*, or Dogbane family, of which many of the species are acrid-poisonous. Philip Miller, gardener to the Worshipful Company of Apothecaries, at their Botanic Garden, Chelsea, England, remarks in his Gardener's and Botanist's Dictionary, of which the first edition was published in 1724, that "oil in which oleander leaves are infused, is recommended in the itch and other cutaneous diseases, in preferment to mercurial preparations for children and delicate constitutions; but that the leaves are acrid and poisonous, and therefore not proper to be used internally without great caution. The branches, when burnt, emit a very disagreeable odor." Even the odor of the flowers, when inhaled in close rooms, sometimes produces very unpleasant effects, but probably your conservatory is well ventilated. Within a few days we have met with the following paragraph: —

"Dr. F. L. Wright, in a communication to the Bellefontaine (O.) Republican, says that he was called to attend a child a few days ago, who had eaten some small fragments of an oleander, that had been clipped off. The symptoms of poisoning were sudden and violent, and the result nearly fatal. Deathly prostration, sunken eyes, great pallor, excessive vomiting, extreme thirst, and purging, were the predominant symptoms."

The remedies are such as are commonly used for narcotic and acrid poisons.

IDEM. — The chemical constituent of soap-suds, which makes them so valuable as a manure, is the potash. Consequently soap, made from the ashes of hard wood, will be more valuable than that made from the ashes of soft wood, — the former containing more potash, — and either will be better than that made with soda, of which plants take up a very small quantity, or none at all, while fruit trees, potatoes, and other plants require large quantities of potash. The grease, which combined with alkali to make soap, furnishes little besides carbon and hydrogen, which can be obtained from air and water. Soap-suds, which have been used for washing clothes, doubtless contain a small quantity of ammoniacal matter, excreted from the body by perspiration, the presence of which in soiled clothes is evident to the nose. Then, too, there is the animal or vegetable fibre from washing woollen or cotton clothes, which, as it decays, will afford food for plants. Of course both these last-named sources can afford but a small quantity of plant food, but no doubt the plants find every particle of it, and so far as it goes it is valuable. Still the chief value of the soap-suds is the potash.

THE ZINNIA IN TEXAS. — Many flowers in this latitude seem to improve, showing decided progress. I imported some zinnias from France two years ago the past season. They were very superior — creamy white for several weeks, then changed to rose color as the seed ripened. Some of the colors had quilled petals, others narrow, twisted petals, seeming quite a distinct type. Besides the white there were yellow, scarlet, rose, crimson, and many varieties of shade and color, rivalling in bloom the dahlia. Zinnias commence blooming here in May, and continue until November. The color seems to improve with cold weather.

S. E. B.

CLEAR CREEK STATION, GALVESTON CO., TEXAS.

THE BEARING YEAR IN APPLES. — We have received from a venerable pomologist, nearly fourscore years old, but who has lost none of the interest in horticulture which characterized him forty years ago, the following reply to the inquiries of "J. C.," on page 115 of the present volume, for which we return our thanks: —

1st. Take scions from a tree in 1871, and put them into a good and thrifty tree, and do the same in 1872, and you will get fruit in alternate years.

2d. If you cut off of thrifty trees the growth of 1871, in the last of July, leaving three or four buds that would come out in 1872, you will force out the next year's buds, and gain one year, and that will give the odd year.

3d. If you will remove all the blossoms on one half of your tree in the bearing year, you will have fruit on that half the odd year. These things I have done successfully.

I have now in bearing the Victory apple of the odd year produced in this way; next year the scions of the last year will bear on the regular year. The remarks of your correspondent in the June number are good and practical.

Yours, *S. A. S.*

SPRING GROVE, BROOKLINE, MASS., June 6, 1871.

L. B. S. — Earth-worms do no harm in your walks and lawn, beyond the disfiguration. In flower-pots they are more injurious. If you wish to destroy them, you can do it by watering with lime water. The following recipe has been given for this purpose: Dissolve in a pint of boiling water an ounce of corrosive sublimate and a tablespoonful of common salt. Add to the solution nine gallons of rain water, and with this water the lawn, walks, or pots where the worms are to be found. The lime water, however, commonly proves effectual, and we dislike exceedingly to have such virulent poisons as corrosive sublimate round.

D. C. E. — We have never stripped the bark from a tree to bring it into bearing, but we have read of more than one instance where it has been done successfully; and we have credited the statement that the tree was soon covered with new bark, because we have seen cases where a spot on a tree, from which the bark had been knocked off, became covered, not as is commonly the case by the gradual progress of a lip, but as if the bark had been exuded or secreted from the whole surface of the wound. If successful, the check which it must give to the growth of the tree would naturally bring it into fruit. Still we should regard it as a desperate remedy, only to be tried when all others had failed. If we attempted it at all it would be in June, when trees are growing most rapidly. But we repeat that we would only try it on trees that we wished to kill or cure, for though we have read of a few successful cases, we know not how many unsuccessful ones may be unrecorded.

G. B., Baltimore, Md. — When we answered your inquiries about a greenhouse, we inadvertently omitted to notice that concerning hot-beds. A bed of leaves or tan gives a far milder heat than the horse dung commonly used.

J. C., Havana, Ill. — We have the promise of an article on the cultivation of the Gloxinia from the best cultivator of that plant we know of.

B. G. B. — The Red or Swamp maple, and the White or Silver maple, as also the elm, ripen their seeds early in summer, and they should all be sown as soon as ripe. The maples may be sown in drills three feet apart, and covered an inch and a half deep, and the elm in drills two feet apart and three fourths of an inch deep. The earth should be fresh, and pressed firmly on the seed, and, as they vegetate the same summer, if very dry they should be shaded. There is much more danger of sowing too thick than too thin. If the seed comes up too thick, the young plants must be thinned, and they must be well and cleanly cultivated.

Elm seed, when gathered from the same tree, will run into varieties, showing a marked difference in the growth and habit of the trees.

Mrs. B. T., Trempealeau, Wis. — The variegation of the golden ivy, as well as of other similarly variegated plants, is owing to a deficiency of coloring matter in the lighter parts. This is an indication of weakness, and consequently such parts of the foliage are most apt to be attacked by disease. The ivy delights in shade and moisture, and is impatient of the bright sun, and we suspect that yours has been too much exposed to it, and perhaps also to too much heat and dryness. We think that if you will keep yours in a cool, moist place, at least partially shaded, you will have no trouble. The north side of the house, if out doors, or a northern window if in doors, would answer. The soil should be well drained.

Mr. Editor: Your answer to my question on apple grafts in the last number was complete and very satisfactory to me, and worth more than the cost of the Journal for the year. It contained my views exactly, but now I have the Journal's authority for it, which is good and satisfactory.

Yours thankfully, *T. P.*

Cedar Rapids, Iowa, May 23.

Our Fruit Crop is almost entirely ruined in this locality. Except in favored locations, the peach, cherry, and blackberry were killed last December. The pear, apple, strawberry, and grape were in fine condition until the morning of the 23d of last month, when we had a freeze that made very nearly a clean sweep of all the latter fruits. *W. P.*

Terre Haute, Ind., May 10.

The Season in Georgia has been remarkably early, and very favorable up to this time. We have ripe tomatoes, and all other vegetables in abundance. Ripe apricots and plums of the Chickasaw varieties, ripe apples of the Red June, Astrachan, and Yellow Harvest varieties. A few peaches have made their appearance in market, of the Troth's, Tillotson's, and Hale's varieties. Strawberries and raspberries are bearing yet, but are not in demand now. *W. K. N.*

Augusta, June 8.

BLUE GLASS.

By Robert Buist, Philadelphia, Pa.

The use of blue glass for horticultural purposes is not a new idea; the subject received considerable attention in the days of Loudon, and its use was repeatedly advocated through his magazine. It is now freshly before us through the ingenious and well-devised operations of General Pleasanton, of this city, in his grapery, and other portions of his establishment. I noticed the effects and results on his in-door grapes about five years ago, by an article in the Gardener's Monthly. Since then, till now, the subject has had no attention, though the general's grape vines and crops have been admired by all who visited them. Whether it is the blue glass, the rich, high, and dry borders, or his original method of pruning, that produces the results, I will not now decide. His large grapery has every seventh or eighth row of blue glass, which produces a very agreeable shade all over the strong and healthful foliage, and the rich-colored and luscious fruit, both of which assert the superior effects of this shade of glass.

Last year I saw in Europe that some of the most scientific horticultural establishments have their propagating glasses and frames all blue glass. In Belgium the very large glass structures had all a shading of

blue; others used blue muslin for a shade, and had so done for several years. At home I have a house one hundred and twenty-five feet long, and twenty-four feet wide, used for growing geraniums for bedding purposes; every year they lost color about the end of April. The glass used is ten by twelve. This season I gave a coating of Prussian blue paint, six inches wide up the centre of each row of panes; the result was electric, and they assumed their beautiful green color in a few days, and the trusses of bloom came to their full maturity. That house is now filled with grape vines in pots; they look vigorous, full of fine foliage, and there is not a burnt spot on them — *there is no border under them.* These hints are merely thrown out before your many readers, and will, in part, answer the many letters that I have received on the subject, even to the shade of glass for several departments of a hospital. I omitted to observe that I saw several glass structures with their interiors painted blue, and certainly it was a very agreeable and refreshing color to the eye.

On this subject there is no axe grinding with us; every man can try it at a cost of from one dollar to any other amount. With your permission I will again trouble you on this subject.

Rosedale, July, 1871.

DOUBLE PYRETHRUMS.

By John C. Hovey, Cambridge, Mass.

One of the most gratifying results which have been obtained by artificial hybridization is the production of Double Pyrethrums.

The first double, or approach to that, was raised by a French cultivator about the year 1856, from *Pyrethrum roseum*, a species much resembling our common white weed (*Leucanthemum vulgare*), but hardly as showy. Since then improvements have been progressing rapidly, and now many of the varieties nearly equal in form and brilliancy of color the best chrysanthemums and French asters. The colors are crimson, carmine, rose, and pure white. They grow from one to two feet in height, and flower during the months of May and June, thriving well in most any soil or situation not too dry. They are also perfectly hardy, and easily raised from seed. Under ordinary treatment they flower the second year from the time of planting, but if started early in the green-house or frame, will generally bloom the same season.

Double varieties should be propagated by division of the roots in September or October. The flowers from which the drawing below

Double Pyrethrums.

was made were raised from imported seed planted in the spring of 1867.

FRUIT CULTURE IN WASHINGTON TERRITORY.

By A. B. Roberts, Walla Walla City.

The north-western part of our country is now beginning to attract some portion of that attention from those wishing homes, and others, of surplus means, wishing an opportunity of investment, that it is in justice entitled to. I say a portion of the attention it should attract. Owing to its remote situation, it seems like a venturesome undertaking to visit this region of country even when one falls into the possession of sufficient information to convince his mind of the superiority of its advantages.

Whenever Washington Territory is mentioned at all, it is in connection with its immense forests or fine harbors. So that timber and forests, bays and harbors, seem to be the only impression one gets of the country.

I propose now to give you another view of it, and one we think of vastly more importance than all others combined; and that is the fruit growing advantages of this territory. You are aware that apples produced as far north as a particular variety will succeed against cold and frost, are found to keep the longest time. As, for instance, raise a Yellow Newtown Pippin in Georgia, and it will scarcely keep until New Year's day, while if raised in New England it will keep until June, and be found to possess more of its excellent flavor, and crisp, solid, and delicious qualities characteristic of this variety, than if raised in the South. Hence the importance of a locality adapted to the raising of the choice varieties of winter apples; and especially favored is the locality that can produce such fruit, and at the same time has a wealthy southern market, with all the natural facilities for reaching that market cheaply.

These advantages we claim for Western Washington Territory. The climate is peculiarly adapted to the production of apples, pears, plums, and cherries; and finer fruit of these species cannot be found in the world — large, perfect, healthy fruit, free from disease, blight, curculio, or any other trouble or annoyance.

Around the shores of Puget Sound, with all its bays, inlets, and harbors, and the Columbia River, with its various tributaries, are tens of thousands of farms or locations where these fine fruits can be produced, and shoved on board vessels bound for the southern coast, or

the thickly-settled islands of the Pacific, or the coast of China and Japan.

But after giving this part of the territory credit for all these great advantages, I must call your mind to the garden of the territory, east of the Cascade Mountains. You can hardly imagine the immense change of climate and general characteristics of the country as you pass this range of mountains. There on the west is all timber and bays; here on the east is all prairie valleys and grassy plains, with only sufficient timber to supply the wants of the people. They raise all the fine varieties of the apple, pear, plum, and cherry. Here we raise all these to equal perfection, and in addition produce the finest peaches, grapes, and all this class of fruit.

The very choicest of European grapes ripen in the greatest perfection, without special care or protection in winter, and are entirely free from mildew and every form of disease. The American grapes of course succeed equally well, but in comparison with the European grapes are very inferior fruit. But finer Concord, Delaware, Catawba, Isabella, and some twenty other varieties, were never seen than we produce here at Walla Walla.

Our grapes ripen from the 25th of July to the 1st of November; Early York peaches, 20th of July, and others in their usual order of earliness; strawberries, 20th of May; cherries, 1st of June; apples, Red Astrachan, 5th to the 10th of July. Our winter apples are always in the market until the following summer apples fully drive them out. Some apples and pears sent by me some two years ago to Boston, Chicago, and other eastern cities, received the highest compliments of the press. Vast quantities of excellent land may be found here, subject to preëmption and homestead location, with the North Pacific Railroad running east and west through the entire territory, already under process of construction, will be ready to carry our fruit to distant markets as soon as we are ready to furnish a surplus.

The universal health of this coast is so well understood as hardly to need a notice. The great want of the territory is a population to develop these vast resources.

ORCHID CULTURE. — III.

By John G. Barker, Cambridge, Mass.

Shading. — This is indispensable, and the best thing for the purpose, probably, is canvas. The easiest way to use it is to have it tacked on to a strip of wood and fastened to the top of the house, the lower part to be tacked on to a roller and run on pulleys with cords; it can then be rolled up or let down at pleasure. It will also be found exceedingly useful on very cold nights, and will help the heating of the house very much. Some use whitewash, or some other daub, which answers very well in hot weather; but when it is dull, the plants need all the light they can possibly get; hence the necessity of a shade that can be used at pleasure. On the upper part of the house a small box may be built for the shade to be rolled up under it in stormy weather, which will keep it dry, and preserve it for a greater length of time than if not protected; this box can be made neatly, and so as to give a finish to the ridge of the house.

Air. — This is very important, for where the temperature is too high, air must be admitted; but care must be taken that the cold air does not come in contact with the plants. The best way to admit air is by small openings in the wall, opposite the hot-water pipes, to be opened and closed by sliding shutters. When these are open, the air rushes in and becomes warm before it comes in contact with the plants; the sash must also be opened at the upper part of the house to allow the heated air to escape. In summer, when there is no heat in the pipes, the outside air is so warm that when admitted it will not injure the plants in the least.

Baskets. — These are indispensable, and for this reason — that some species, especially *Stanhopeas*, and a few of the *Peristerias* and *Acinetas* send their flower spikes down through the soil; and it is evident that if these are grown in pots they must perish, or the greater part of them at least, unless the plants are elevated very high above the rim of the pots. These baskets must be of a size proportionate to that of the plant, the smallest being six inches square, the next ten, and the third fourteen. A very pretty basket may be made of rods of some kind of hard wood; hazel or oak will do. Cut them into proper lengths, and with a sharp-pointed borer, made red hot, bore a hole through each end of the rods, and, having some copper wire ready, run it through the holes, laying the rods one on the other, about three high for the smallest size

basket, four for the next, etc., the wire being wedged, after passing through each rod, with small wooden pegs, and the basket is ready for use. Baskets made in this way have a rustic appearance, and look very well, and, where you have plenty of time to make them, are, perhaps, the best; but another basket, made of galvanized wire, I have lately been using, which is much cheaper, and answers every purpose; they are made round and shallow, the largest size, which is fourteen inches across the top, and six inches deep, costing but sixty cents each, the basket being lined with sphagnum (or bog moss); after the plant is put in and finished, the sphagnum may be trimmed off with scissors, and it will look neat and clean.

Pots. — The kind of pots best for orchids are wide, shallow ones, the proportions being about as follows: three inches deep, and five wide at the top, all inside measure; larger ones to be about the same proportion. These can be ordered at any pot manufactory, and will cost no more than ordinary pots. The latter may be used, but must be filled up very much, say one half, with broken potsherds; but they are not as good as those before-mentioned. When ordering, it is a good idea to get a few without holes at the bottom (large size ones), and keep them filled with water and placed at regular distances near the hot-water pipes. These will be found very useful, not only for additional evaporation, but for syringing and watering, the water being always warm. Pots with holes in the sides should also be procured; they will be found very useful for many of the Indian species, such as *Aerides*, *Vandas*, etc.

Syringe. — There are many good ones, and you must make your own choice of kinds that you get; but with it get at least two roses, one a fine one, and the other a medium size, or coarser; the first will be found very useful to form a gentle shower over the plants like dew, while they are growing; the latter for showering the soil in the baskets heavily, washing off insects, and for general use.

Watering Pot. — There should always be one, for the orchid house, of a medium size, and with it should be a long spout which can be put on as required for use, and which will be found very convenient for watering plants at a distance.

There should also be a good potting bench of a fair size, if possible, in a room attached to the orchid house, so that when the plants are removed from the orchid house for potting, they will not be subject to any sudden change of temperature. This room should be so arranged that a door should open from the orchid house into it, which will warm it at any time; and under the bench may be built small size bins for the storing of

soils, moss, etc., and some shelves around the sides for the storing of pots, baskets, etc. The hot water boiler and coal bin should be in this room also, and it should have a cement floor, which will cost but a trifle, and be always dry, and the walls whitewashed, which will help to make it light; it can and should always be kept clean and neat. With this we complete the brief list of the apparatus necessary for the orchid grower, having already exhausted the space allotted for that purpose.

CULTURE OF THE TUBEROSE.

By E. W. Buswell, Boston, Mass.

As the time is upon us for starting in growth tuberose bulbs, for bloom in the holidays, it is thought a few hints, prompted by practical experience, may be acceptable to your readers. This flower, the *Polianthes tuberosa* of the botanists, may be, and is, cultivated with passable success, by being planted out like gladiolus and other similar roots; but as it is susceptible of being forced so as to give from thirty to forty flowers, why should we content ourselves with half our bulbs blossoming, and they producing only a dozen small flowers each?

To bring it to its highest condition, a few general principles are to be kept in view. First, the bulbs should be well grown and strong, having nursed but few offsets in their previous growth. Second, they should never feel a colder temperature than forty-five degrees Fahrenheit (even in their quiet state); otherwise the bulbs are weakened, which will be shown by the blighting of the flower-buds. Third (and this applies with more or less force to all vegetation), never allow them to make growth of foliage without having well-established roots. To this end, keep the bulbs, while in a quiet state, in a uniformly dry and warm atmosphere. Fourth, they are *gross feeders*, and being natives of a warm climate, can hardly be pushed too hard after they have begun their growth. This may be considered fundamentally essential to success.

The plan of culture given below I have adopted as best calculated to govern the supply of heat and food, but it may be varied to suit other circumstances, keeping in view the foregoing general principles.

Divest the bulb of its scales, and with a knife remove all embryo bulbs. Follow this up, during the growth, by splitting them off as soon as they appear above ground. Prepare seven-inch pots by filling one third with old cow manure gathered in the pasture, broken fine, or its

equivalent, and fill up with good rich compost of equal parts of loam, sand, and well-rotted manure, in which plunge the bulbs nearly to their tips. Of course a space is to be left for watering when growth has commenced. If a hot-bed or other bottom heat is at command, plunge the pots to the rim and cover the plants from the light, for by this, root growth is induced in advance of foliage, *thus securing strength.* Give only sufficient water to preserve moisture until foliage appears, then remove the shade, and gradually increase the watering until the blossom stalk begins to spin up, when a full supply should be given. Liquid manure twice a week will not be too high feed for them. But little further care is necessary, except to divest them of offsets, as before directed, until the approach of cold nights, when they should be removed to the conservatory, or other warm quarters. By shading from full sunlight when in bloom, they, like all other delicate flowers, may be prolonged in their season of beauty. Bloom may be expected in about four months from the time of potting, and such bloom as will well repay all extra care or trouble.

TOMATOES. — HOW TO TRAIN AND PRUNE THEM.

By Charles Robinson, New Haven, Conn.

Of this healthful esculent there are numberless varieties. In my city garden, those with abundant fruit, of large size, fine form, entire solidity, and the highest flavor, are alone worthy of a place.

After years of careful trial, the two varieties which find the most favor with the ladies of my family are Maupay's and Robinson's (my own) "Giant." The latter, some years since, had such a reputation in the wide West, that I was assured by cultivators of the highest character there, that I might travel through that entire region *free*, if only I would permit myself to be known as the "Tomato Man." Its only lack of perfection consists in the fact that the fruit is not always as smooth as I could wish; and yet, upon the Darwinian theory of selection, it ought long since to have become fairer and richer than the finest Havana orange. The Trophy I have never tested, but it promises finely.

My garden, of some fifty-five by two hundred feet, has been regularly trenched every season for more than twenty years, and abundantly enriched with the most approved fertilizers. The soil is now three feet or more in depth, and as no weed during all that time has been

permitted to run to seed there, it is entirely free from such annoyances, and its cultivation is directed simply to promote the vigor and growth of the plants.

The tomatoes are set in rows, three feet apart, and trained upon temporary wire trellises, reclining moderately from the row, so that the vine may rest upon the wires, to which it should, of course, be tied. All this is very simple.

The attentive observer will have noticed that the leaves and branches of the tomato spring together from the main stalk, with intervals of from six to ten inches, and that from such intervals, on the main stalk, fruit-bearing stems, filled with fruit buds, have their origin.

With ordinary pruning and care these fruit stems produce one, or possibly two, tomatoes, unless, indeed, as too often happens, all the buds perish; but under the treatment which I advocate, they all become beautiful clusters, of some six to twelve fine, full-grown specimens.

How is this desirable object accomplished? Simply by cutting or breaking off every branch as it appears, leaving only the main stalk, with all its leaves and fruit stems, and when that arrives at a sufficient height, nipping off the terminal bud.

This mode of pruning forces all the power and vigor of the plant into the fruit stems, vastly increasing their productiveness, hastening the growth and maturity of the fruit, and giving it far greater beauty, and exceedingly high and rich flavor.

These upright plants, thus loaded with splendid clusters of the finest fruit, become exceedingly attractive ornaments to the vegetable department, and excite great curiosity and interest in all observers. No person who has carefully carried out this mode of culture, will ever be satisfied with this fruit raised in the ordinary manner.

May 20, 1871.

THE SHALLOT.

By Fearing Burr, Hingham, Mass.

The Shallot is one of the hardiest of the onion family. The bulbs, which are shown of their natural size in the illustration, are formed of numerous divisions, called "cloves." As the plant rarely produces seeds, it is propagated by planting these divisions or "cloves," each of which, like the potato-onion, develops into a group or cluster similar to the parent.

The "cloves" are set early in spring, in rows fifteen inches apart,

and six inches apart in the rows, covering to the crowns. They grow rapidly and ripen early, generally yielding five or six fold.

Besides being desirable for its late keeping property, the shallot has long been esteemed for mildness and delicacy. In many parts of Europe it is more extensively grown and more highly prized than even the onion. Few alliaceous plants are more healthful or possess a finer flavor, and there are certainly few more productive. A space of ground ten or twelve feet square would afford a family an abundant supply.

The crop has hitherto proved much more certain than that of the common onion. It is true that it does not entirely escape the attacks

The Shallot.

of the maggot, yet it could probably be grown with a good measure of success in localities where the onion would uniformly fail.

But the shallot, even under the highest culture, rarely exceeds an inch and a half or two inches in diameter, besides being quite irregular in form; and these objections probably prevent its more general use. The kinds described are few in number, the colors being red or brownish yellow. Some of the roots are said to keep two years.

Under the warm and dry seasons of the United States, the shallot sometimes blossoms and perfects its seeds. These seeds, as has been shown by cultivators, sport in a most remarkable manner, and exhibit a degree of variation rarely seen in any other plant.

DWARF PEARS. — III.

We shall conclude our series of articles on this subject with a few remarks on pruning.

It is desirable, if possible, to plant trees two or three years from the bud, which have been properly pruned in the nursery; but these are not always obtainable, in which case it is better to begin with a one-year-old tree, and we therefore commence with that age. Such trees — maiden plants, as they are termed by nurserymen — are frequently single straight shoots, from three to four feet in length. The first thing to be done is, to head down to a good bud at the height at which we wish the lowest tier of limbs to grow. We would not have this less than one foot from the ground, as this is necessary to afford a circulation of air, without which the lower limbs will soon become enfeebled, and ultimately decay. The shoot from the uppermost bud is to form the leader for the continuation of the stem, and, if necessary, must be tied to a stake to keep it straight. It is less trouble, and will generally answer the same purpose, to leave an inch of blank wood above the upper bud, to which the young shoot intended for the leader may be tied, just like a growing bud in the nursery. This piece of wood may be removed as soon as the young wood is sufficiently firm, just as the "snag" is cut away from the bud. The arrangement of the buds of the pear is such, that five complete the circuit of the shoot, the sixth being over the first; our tree will therefore be most regular in shape if we allow five buds, besides the leader, to grow as the commencement of the first tier of branches. If the tree is very stocky, all below these may be rubbed off as soon as they start; but if slender, it will be better to pinch any shoots from them when two or three inches in length, in order to strengthen the stem, and cut them off clean at the winter pruning. Some varieties, like Bloodgood and Glout Morceau, instead of making a single clean shoot, form lateral branches the first year, the latter especially often producing a perfect little pyramid. From such ones we would remove all the laterals but just enough to form the first tier of branches, and if there is anything to spare from the leader, we would shorten that also. Such trees will, however, have many more buds than on the single shoot, and, therefore, will require special care in transplanting to preserve the roots. We will say here that all wounds made by removing limbs at the winter pruning (we apply this term to all pruning done when the tree is in a dormant state), especially on newly-

transplanted trees, should be covered with the gum-shellac solution, to avoid injury by evaporation.

The second year's pruning will consist in heading down the leader to the point from which we wish the second tier of branches to spring. In selecting this point, it must be remembered that the limbs will look much closer when they have become two or three inches in diameter, than they do now, while only from a quarter to half an inch thick. A foot is the least distance we can advise between the annual tiers of branches, and in trees of dense, compact habit of growth, it should be more. In heading down the leader the second time, it is well to cut to a bud on the opposite side from that left for the leader at the first time, as thereby the main stem will be kept straighter. At the same time the lateral branches must be shortened back, but how far will depend in great measure on the habit of the tree. If cut too far, the tree will be too full of wood, and the shoots difficult to control; if not far enough, the interior will be naked and open. A careful study of the habit of the tree, and the exercise of good judgment, will be indispensable here. A majority of trees, especially those of upright growth, like the Buffum, should be cut to a bud on the outside of the shoot; but straggling, irregular growers will often require to be pruned to an inside bud, remembering always to prune so that the last bud shall be in a position to grow in that direction where the new shoot is desired. Have a sharp knife, and make a clean, sloping cut on the opposite side from the bud. Do not leave any blank wood (except to tie the young shoot to, to be afterwards cut away as above described), nor cut too close to the bud, so as to injure it. If the top of the cut is even with the point of the bud, it will be about right.

As the lateral shoots lengthen, the distance between them will increase, and, consequently, one or more secondary shoots must be retained to fill the space. All shoots not wanted to extend the tree must be pinched when about two inches in length, which will cause them to form fruit spurs; and if they start again they must be pinched a second time, which will generally be sufficient; but if not, they must have a third. If this is neglected, the interior of the tree will become crowded with wood, which must be removed with the knife at the winter pruning, thereby stimulating the growth of wood, and retarding the bearing of fruit.

The third and subsequent year's pruning consists in the application of the same principles, pruning in winter to form the tree, and pinching in summer for the same purpose, and also to promote the formation of fruit buds, always remembering that the lowest branches must be long-

est, and that if the top threatens to acquire a disproportionate vigor, — of which there is danger, especially if the summer pinching is neglected, — it must be pruned closer in the winter, and the weaker branches left longer.

We commenced by saying that it is desirable to obtain trees of two or three years' growth for planting, and if such can be procured, they should, when planted, be pruned as here directed, only a little closer, so as to balance the loss of roots in lifting. But as many roots should be saved as possible, and they should be carefully planted, for the less check the tree receives, the more perfect will it ultimately become.

It is possible by constant care to form a pear tree into as perfect a pyramid as a clipped Norway spruce, but we do not think it desirable. Neither would we advise the goblet or other fanciful shape, for the pyramidal, being the most natural, may be attained with far less trouble than any other. We cannot in this brief space give such directions for pruning as shall enable a novice to know at sight just what branches to prune, nor could we in a volume. Much must be left to the judgment of the operator, who, by careful study of his trees, will soon acquire a skill in pruning which cannot be communicated by books. And if any one objects that he has not time to carry out even the concise directions we have given here, let him plant a few trees of the best kinds, selecting those which, like the Urbaniste, naturally form regular pyramids; and if he will only add to good cultivation an occasional shortening or pinching of a branch which threatens to destroy their balance, Nature, whose object is the perpetuation of the race by the production of seed, will, in due time, take care that he gets the seed, and with it the fruit which encloses it.

EXPERIMENTS.

By "Enthusiast."

Why should not every horticulturist aim to add at least one marked improvement to our list of trees, fruits, or flowers? And why should not each one succeed? Considering the success of the past with pears, dahlias, roses, and grapes, is there not good reason for expecting as marked changes in the future? Let me suggest to our horticulturists a few openings for experiment. I believe that we may, with patience, obtain quinces as melting, palatable, and digesti-

ble as pears. What a grand fruit we should have, retaining the aroma and intense flavor of the present quince, could we add what we have in the dessert fruits! The papaw, a hardy western fruit, our native custard apple, has also elements of great promise. We must enlarge and civilize the pulp, and reduce the seeds, and surely there would hardly be a more delicious fruit in our states. It is the banana of the temperate zone, but so far has been neglected. The cherry has had its Kirtland, the pear its Van Mons, the strawberry scores of champions; who will give us our northern banana? There is also still a possibility of a new strain in strawberries — an improvement in the white varieties. Lennig's White is already one of the most delicious, and respectably large, with a decided tendency to bear in the autumn. But it is not a heavy bearer, nor sufficiently uniform in size. A white berry has the advantage of entirely escaping the birds, and this, for small fields, is no trifling matter.

In flowers also we need a renewed enthusiasm. The verbena and rose begin to ring changes on old forms, with a nice approximation to perfection. When new varieties displace others of equal merit, no progress is secured. But why not open new paths? The gladiolus has apparently no limit to its march to glory. And why not lift the humble dandelion to the side of the dahlia, in size, colors perhaps, and in perfection of outline?

Every horticulturist ought to have a small experiment garden where he tries a few select pear and apple seeds, a few grape seedlings and strawberries; and also tries his skill at such new varieties and species as I have named above. Having had success in starting a gladiolus of unsurpassed beauty, and a few choice individuals in other families, I am as happy as — well, as all the bulls and bears when stocks go to suit them.

ADRIAN, MICH.

THE THRIP AND SLUG.

By L. WYMAN, Arlington, Mass.

THE *Thrip*, or *Aphis*, looks like the little green fly of the rose-bush, but is considerably larger, of a pale ash or green color. You will find this little rascal generally on the under side of the foliage of the grape vine. It multiplies with exceeding rapidity, and will, if not attended to at once, soon people the whole vine with a colony of thieves, as

numerous as undesirable. Let them alone for a few days, and you will find, to your cost, that "somebody is here," for the beautiful green foliage of last week now becomes of a dark-gray, or mottled color; in some cases I have seen it of dingy brown, the juices of the vine leaf being sucked up or exhausted by the thrip.

You should get rid of this pest as soon as possible; he lessens the size and flavor of the grape.

Little rascal number two is a *Black Slug*, and, like his brother-depredator, is also found upon the under side of the leaf. This fellow, if left to himself, will, in a short period of time, completely destroy a very thrifty vine. I have seen the most promising and thrifty vine utterly destroyed by the ravages of the black slug. Its destroying march is like that of an army of caterpillars; whenever you find these depredators present, you must at once give them their quietus, or they will give your grapes their quietus.

I found, in July, 1847, these little rascals had gained full possession of my vines, and at once took measures for their effectual removal. In four days from the first application of my remedy I had not an enemy to be seen. They were most effectually destroyed, both the aphis or thrip and the black slug, and my vines, being free from these pests, soon recovered their wonted greenness; yet they were much retarded in their future growth, and bore much less fruit than they would have done had they been unmolested by these insects.

I used, to destroy the slug, strong soap suds, and made the solution with hot water, and let it cool before using, and applied it, from a garden syringe having a fine rose jet, to the under side of the leaves only, repeating the applications twice each day until I expelled the marauders. Soap suds will effectually kill the slug, but not the aphis.

To kill the thrip, or aphis, I used a decoction made from the leaves of tobacco, and applied in the same manner as the soap-wash for the destruction of the slug. A pailful of this preparation is sufficient for a good-sized grapery.

In making this preparation, you should be careful to have it of just the right strength. It is best to make a quantity quite strong, and then to reduce its strength by adding water, applying it to a few leaves. A few experiments enabled me to gain the requisite strength to kill the insect, and not injure the vine. I have used these remedies since 1847, more or less, and always with complete success.

THE GIRDLED PEACH ORCHARD AGAIN. — MR. EDITOR: I notice you copy from a Jackson, Michigan paper, an item stating that William Cornell (his name is Cornwell), had been arrested for girdling Green's orchard, at Benton Harbor. All the evidence they found against the man, I am informed, is that Green had given him good reason to feel spiteful towards him. Mr. Cornwell has been living here for a number of years, and must have seen the statement published by the County Register of Deeds, that the sale of the orchard to Mr. Hunter was genuine; and it does not seem probable that a man of ordinary intelligence would run the risk so many times of being caught in a great crime, when there was so little probability of injuring the one he sought to be revenged on. It seems to me that the course pursued towards Mr. Cornwell was about as bad as girdling trees. Had he been a stranger, and likely to escape, his arrest on suspicion might have been excusable; but as he was not, there was no good reason for putting him in jail before finding *some* evidence against him. A motive is a very good starting point for detection of crime, but it is no evidence of guilt alone.

J. A. Donaldson.

ST. JOSEPH, MICH., July 4, 1871.

THE BEAN VINE AND THE SUN. — On this side of the equator, all bean vines at all times twine the same way. Why? It has been a question whether the sun has anything to do with the matter. To settle this question, Prof. J. Parish Stelle wrote to a friend residing in Brazil, just below the Tropic of Capricorn, asking him how the bean winds there. His friend replies that it goes round the pole in precisely the reverse direction from that taken in the United States. How does the bean manage directly under the equator? Can any one tell?

Rural Carolinian.

THE COMPASS PLANT. — Our more common name is *Resin Weed.* In your July number you say, "This plant possesses the peculiarity of holding its leaves in such a position that the edges point north and south, so that it is used by the settlers on the prairies, when lost in dark nights, to get their bearings."

Not only the edge of leaves, but the whole leaf, and all the leaves on the stalk usually point north and south, and the flower on the top of the stalk points or faces south. This is a general rule, though not invariable. The "settlers on the western prairies" never look for a "Compass Plant" "when lost in dark nights;" but it has sometimes been looked to in the day time as a guide. We, the early settlers of these broad prairies, used occasionally to get lost in a cloudy day; yes, lost in the day time, as really so as a boat at sea without a compass, and we preferred a pocket compass to a Resin Weed.

Resin Weed — its name indicates its character. Its stalks, which are four to eight feet high, contain quite a quantity of resin, so much that when the cattle or horses ate off the tender top, a gum would form on the top of the broken stalk — a small lump of good chewing gum, much like spruce gum, and I have often gathered and chewed it, reminding me of my boyhood days in the mountains of New England. We also used to gather a bundle of dry Resin Weed, and light it, and stick it in the bow of the canoe, for a torch light, to fish by at night. It was excellent sport to see the fine fish of Rock River and Cedar River gather beneath our light, where we could spear them, and bring in a hundred weight in an hour. *Suel Foster.*

MUSCATINE, IOWA.

THE DURANDEAU PEAR. — By turning to page 488 of Downing's Book of Fruits, you will find that the "Durandeau" Pear *is* "mentioned" by a full description of the variety. The name "Durandeau," being a synonyme of "De Tongres," and more euphonious, has been generally adopted here. It is not much cultivated in this vicinty, although a very superior variety, and is held in great esteem by those who succeed in growing it; but the young wood is apt to winter-kill in our severe winters, which makes it objectionable to many cultivators. And besides, there are other very superior varieties, ripening at the same time, which are grown here in large quantities and in great perfection, such as the Comice, d'Anjou, Superfine, Sheldon, etc. There is a fair crop of pears in prospect, but that of apples will be small in this vicinity.

Speaking of apples, I am reminded to say that the canker worm has made sad work with some of our finest orchards this season. And when I see people, as I have lately, vainly endeavoring to apply some remedy to exterminate the pests, I wish it could be *emphatically impressed* on their minds that the remedies *must be applied in the autumn*, or their labor is in vain. *C.*

WORCESTER, MASS.

[We recollected, as soon as reminded of it, that Durandeau is a synonyme of De Tongres, but we can't carry everything in our head all the time, and Durandeau happens to be accidentally omitted in the index to Downing's book. — ED.]

A Small Fruit Garden. — We had lately the pleasure of a visit to the grounds of our correspondent, Mr. James Draper, at Worcester, Mass. They comprise about twenty acres, including the nursery of trees and shrubs, of which about half are in strawberries, rasbperries, and blackberries, so that it will be understood to be, not a small garden of fruits, but a ten-acre garden of small fruits. The principal attraction at the time of our visit was the strawberries, which were then at the height of the season, and we not only had the pleasure of examining the strawberries, but of meeting some of the prominent horticulturists of Worcester, including several old friends, whom Mr. Draper had invited to visit his grounds. The Wilson and Jucunda still stand at the head of the list as market berries, and we saw both of them producing most abundant crops when cultivated in hills, as described by Mr. Draper in our Vol. VIII. p. 267. Among the newer varieties, the most promising as a market variety was the Boyden's No. 30, or Seth Boyden. Charles Downing was regarded with favor, as was also Kentucky, as a late kind. Napoleon III., as an amateur's fruit, was of the highest excellence, the flesh exceedingly delicate in appearance, and of the finest flavor. In quality it rivals Lennig's White, and has but little more color. The foliage is of a deep green, but so covered with down as to present a hoary appearance. But we forbear from further remarks on varieties, as we hope to have a *resumé* of Mr. Draper's experience of the past season for publication in the Journal, though we must not omit to acknowledge the feast of strawberries, of every variety, to which we sat down in the tent used for packing the fruit for market, to crown the labors and pleasures of the day.

The raspberries, both of the black cap and European species, as well as the blackberries, were all shortened in when three or four feet in height, so that not a stake nor a tie is needed. The Philadelphia raspberry here, as everywhere, exceeds all others in productiveness, and in quality is second rate, as it is elsewhere. Of black caps, the Davidson's Thornless possesses a great advantage over the Doolittle in its freedom from prickles, while nearly or quite equal to it otherwise. The McCormick, or Mammoth Cluster, is larger than the two already named, but later, and of excellent quality. Of blackberries, the Wilson's Early and Kittatinny are chiefly cultivated. Both are highly esteemed, but the Kittatinny requires a year longer to come into full bearing than the Wilson.

Burning out Stumps. — In the North-west we are told they have adopted a new method of getting rid of stumps. In the fall they bore an inch or an inch and a quarter hole, according to its size, vertically into the middle of the stump, eighteen inches deep, and put into it from an ounce to an ounce and a half of saltpetre; fill the hole with water and plug it up. In the spring they take out the plug, and put into the hole from half a gill to a gill of kerosene, and ignite it. It will go on burning without any blaze, until the whole stump, to the extremity of the roots, is consumed, leaving nothing but ashes. The stump must be moist: an old dry stump will not be penetrated by the saltpetre. We have no great faith in this process, especially for our pine stumps, which we fear the nitre would not penetrate, but wish some one would try it and report results.

Rural Carolinian.

Pear Blight in Mississippi. — I note in your very interesting magazine, that you have commenced publishing a list of the leading nurserymen in the United States ; and though far from being such as most of them, my nursery is about the largest in this state, and is devoted entirely to the propagation of fruit trees, apples and pears especially. In orchard and nursery I have about forty acres. Please advise cost of insertion, and I will then write you.

I note also that your magazine seems to have little correspondence with this section, and articles on subjects suited to our climate I do not often see — and wish it were otherwise, as I like it much. I am cultivating pears largely, and regret that the disease — pear blight — to which your northern orchards are subject, has appeared this year in a slight degree, and yet I have not seen any article treating on the cause or remedy. Several varieties of pear trees have each year been subject to leaf blight ; but that I can remedy at any time by an application of gypsum, sprinkled over the leaves, when the dew is on them. Is there no remedy for the other?

Our section offers great inducement, in the way of cheap lands, in a high, healthy rolling pine country. The vine flourishes with great luxuriance, and bears large annual crops. Our main difficulty is the want of reliable labor ; such as we have (the negro) is perfectly useless, and really not worth feeding. To give you an idea of what we are doing, I gathered peaches (Hale's), ripe, on 26th of May. Ives's seedling and Clinton grapes are coloring well. Concord ripens about the middle of July. My pear trees have borne large annual crops, and ripen admirably. But I fear I have bored you with this, and close.

Very respectfully, *W. Cunningham.*

Summit, Miss., June 19, 1871.

[In this part of the country the pear blight is seldom experienced, so that very little is known of it, and, in fact, very little is known certainly as to its cause, even where it prevails most. Trees which make a late succulent growth are most liable to its attacks, by freezing in the cold of autumn and winter. Long-jointed, vigorous growing varieties, like Madeleine and Passe Colmar, are more subject to it than short-jointed, stocky growers, like Seckel. The only remedy known is to amputate the part affected. The preventives are such means as will keep the tree in a state of moderate growth, and cause it to ripen its wood early. Root pruning has often been used with excellent effect. Ashes, lime, decomposed vegetable matter, and phosphates are preferable to nitrogenous animal manures. Where the soil is excessively rich, allowing grass to grow around the trees will have a good effect in checking their growth, thereby rendering them less liable to blight.

We should be glad to give more information on the culture of fruits, etc., suited to the southern part of our country. We thank our correspondent for his note, and shall hope to hear from him again, and that others will follow his example. It would be of interest to know whether the symptoms of pear blight which he has observed are the same as those described by northern writers. We copied in our last number a paragraph from an article of his in the Rural Southland, respecting gypsum as a remedy for leaf blight. — Ed.]

AMERICAN POMOLOGICAL SOCIETY. — The prospect for a full attendance and an interesting meeting at Richmond, in September, is most encouraging. The Massachusetts Horticultural Society has appointed more than forty of its most active members as delegates.

The following communication concerning exhibitions of trees, etc., at the meetings of the Pomological Society, has been sent us, with a request for its publication. If we had written it we should have made some of the expressions a little different; and we do not know whether any other person than the writer of this note has felt aggrieved by the practice mentioned, but the possibility that it may prevent any such inequality, is a sufficient reason for its publication.

"TO THE HON. MARSHALL P. WILDER AND EXECUTIVE COM. AM. POM. SOC.

"GENTLEMEN: I respectfully submit to your esteemed consideration the propriety of some definite understanding and positive rules touching the subject of the exhibition for commercial purposes of trees, seedlings, and plants, at the meetings of your society.

"A sense of equity would seem to demand that either all members of the association should be allowed to place on exhibition, in the rooms of the society, their various salable products in the way of plants, trees, seedlings, etc., or that all should be rigidly excluded from this truly valuable and cheap advertising privilege.

"To allow a few 'brassy' and 'cheeky' individuals to parade and placard their trees, etc., against the known *wishes* of the society, and thus monopolize the thing, seems hardly fair to the balance of the 'craft,' whose self-respect will not allow them to sneak in their wares. I am a nurseryman, ready for any honorable enterprise; would like to exhibit my stock at such a gathering as the last in Philadelphia; am willing to pay for the privilege, believing, as a business enterprise, it would pay. Candor compels me to say, however, that it is hardly fair and honest to pick a handful of trees out of a hundred acres or more of trees, and show them as a sample of the quality of one's productions.

"Your official answer through these pages will, I know, be thankfully received by the fraternity. *Nurseryman.*"

LIMA BEANS IN CALIFORNIA. — Captain Jonathan Mayhew, of Santa Clara Valley, has a field of one hundred acres in Lima beans. The crop is in a very promising condition. The beans sell at about three and one half cents per pound, when the common white beans bring two and a half cents, and are said to be no more trouble to cultivate or to market.

THE EARLY ROSE POTATO is recommended by a writer in The Plantation, published at Atlanta, Ga., as a great acquisition to southern farming. From its earliness, two crops can be produced the same season, thus overcoming the difficulty in the culture of the Irish potato in the South, of keeping good seed through the winter. The second crop is planted about the fifteenth of July.

TO DRIVE AWAY RATS. — A writer in the Germantown Telegraph says that to keep a goat is a sure way of driving rats from the premises.

Cherries in Central Massachusetts. — It appears that we, of late years, in this section of the country, have been yielding too easily to discouragements. The crop of cherries, — a fruit we have been almost tempted to abandon, — for instance, has been this season, in all gardens of this city, most abundant and fine. Many cultivators, indeed, are now beginning to regain faith in this refreshing summer fruit, to the extent even of regarding it as profitable for market cultivation. As a sort of triumph of hope over experience, there is a certain peculiar gratification in this, that almost emboldens us to predict a return also of the good old days when almost every farmer on our New England hills used to sit under his own peach tree and eat the fruit thereof, with none to make him afraid — (of a scarce supply). *G. F.*

Worcester, Mass, July 10, 1871.

[We think the crop of cherries has been in this part of the country superior to any since 1860. In the spring of 1861 the trees were greatly injured, many being nearly or quite killed, and they seem now to have fairly recovered. Many cultivators who have neglected their trees will no doubt think it worth while to give them some attention, and now is a good time to prune out the dead wood to be found in most of them. — Ed.]

Resignation of the Commissioner of Agriculture. — General Horace Capron has resigned his position, the resignation to take effect August 1, to fulfil an engagement with the Japanese government, to introduce American industrial ideas, and the implements by which they are carried out, into Japan. Few men could in the same time have brought up the Department of Agriculture from the demoralized and disreputable condition into which it had fallen, when General Capron was placed at its head ; and while his resignation is universally regretted, his new mission is undoubtedly of the highest importance, not only to Japan, but to civilization generally. We trust that his successor may be equally fortunate in securing the esteem and confidence of the agricultural community.

Tansy for Currant Worms. — E. Bonney, Jr., Syracuse, N. Y., makes a strong decoction of tansy, and sprinkles it upon the bushes from a watering-pot. He applies it when the dew is on, three mornings in succession, and then waits until the worms reappear. The remedy is cheap, simple, and easily applied, and in the hands of Mr. Bonney, has proved successful.

American Agriculturist.

The Pea-bug can be easily got rid of by following the plan we printed years ago, taken from Landreth's Almanac, which was simply that after the seed was ripe and dry to put it in bottles and cork up *perfectly air-tight.* The larvæ, though so minute as not to be seen by the naked eye, will die for want of air, just like every other living thing. *Germantown Telegraph.*

The Delaware Strawberry Crop. — Twenty-four car loads of strawberries, comprising 256,000 quarts of the fruit, weighing 250 tons, passed through Wilmington, Del., for the North, in a single day during the past season.

TERMINOLOGY OF THE GRAPE VINE. — At the annual meeting of the Illinois Horticultural Society a committee, consisting of Messrs. J. E. Starr, Dr. Warder, Dr. Spalding, Dr. Hull, Pres. Flagg, Mr. Shepherd, and Prof. Burrill, was appointed to determine and settle the terminology of the different parts of the grape vine. We give below their report, which was adopted by the society, and has since been adopted by the Missouri Valley Grape Grower's Association, the Mississippi Valley Grape Grower's Association, and the Alton Horticultural Society.

Roots. — That part of the vine growing below the surface of the ground.

Stem. — The main stock below the branches.

Arm. — A branch permanently trained in a horizontal position.

Shoot. — Green wood. This consists of fruit shoots, young canes, and suckers.

Lateral. — A branch from a shoot.

Cane. — A ripened shoot, grown from the stem, arm, or spur.

Spur. — A cane cut short.

Joint or *Node.* — The enlarged part, whence come buds, leaves, and tendrils.

Internode. — The part between the joints.

Tendril. — The twining support.

REPORT OF THE MISSOURI STATE ENTOMOLOGIST. — We have received from Charles V. Riley, State Entomologist, his Third Annual Report on the Noxious, Beneficial, and other Insects of the State of Missouri, made to the State Board of Agriculture, pursuant to an appropriation for this purpose from the legislature of the state. It commences with an account of some of the snout beetles most injurious to fruits and vegetables, the first of which is the common plum curculio. It has heretofore been a doubtful point whether this insect produced more than one brood in a season, but Mr. Riley has satisfied himself, by a carefully conducted experiment, that it is single-brooded. He has also discovered that, contrary to the usual belief, it is nocturnal rather than diurnal, that it is far more active at night than at day, and flies readily at night. This fact has a most important practical bearing.

Mr. Riley recommends the Hull curculio-catcher as, though not entirely satisfactory, the best means of destroying the curculios. Several proposed improvements on it are described. He also urges fruit growers to give Mr. Ransom's trapping process a good trial, and to report the results. After these snout beetles, about a dozen insects injurious to the grape vine are described, and these are followed by the Colorado Potato Beetle, and other injurious, beneficial, and innoxious insects.

We cannot speak too highly of the information given in this and similar reports. Every cultivator should read them, and act upon the directions for destroying the pests described. It is only by the universal dissemination of such knowledge that we can hope to awaken cultivators to the importance of the work, and teach them how to do it; but by the diffusion of such knowledge we may hope ultimately for the extermination of these pests, which, in the aggregate, inflict upon our crops such enormous injury.

Preserving Small Fruits. — I can't afford so many cans. I tried it on a small scale once, but as the fruit was no better, and the space required so great, and the expense great too, I gave it up. I dry everything, or rather partially dry them ; either pack in sugar, or, after packing, pour a strong sirup over the fruit. For the small fruits, cherries, strawberries, etc., I put in my preserving kettle a cup or two of sugar with the least water that will make a stiff sirup, throw in some fruit ; when scalded, skim out as free from sirup as possible, spread on plates and dry in the oven, pack before they are dried hard, boil the sirup down. Add a little sugar each time you add fruit. Do not put in too much at a time, or in stirring you will break tender fruits. Strawberries put up in this way will not fade, and though I never tried to keep them more than one year, I have no doubt they would last many years. I have kept cherries three years in this way without the trouble of wasting or scalding. When wanted for use add a little water, as much sugar as you wish, and stir gently, a few minutes only. A bushel of fruit can be packed in a gallon jar, and you will have jelly left after pouring on your dried fruit as much as it will absorb. This Mrs. Mason told me one day, and I, Lettie Lee, can indorse her statement in regard to the aforesaid good things. *Western Rural.*

Effect of Battles on Vegetation. — We find the following paragraph in the Boston Daily Advertser. The effect described is not strange, but it appears singular that it has never been noticed before. Has any one ever seen any mention of it? —

"Among the evil effects of the war, it has been observed that in the vicinity of the scenes of great battles, vegetation has been generally, if not entirely destroyed, at any rate, materially impaired. Such plants as have not actually died, have withered or grown up wan and sickly, as if poisoned by some injurious substance in the air or the soil. German chemists have explained the phenomenon as arising from the diffusion of sulphur in the air and over the surface of the soil. This sulphur, in the shape it is contained in the smoke of gunpowder, is supposed to combine with the oxygen in the atmosphere, to form sulphurous acid, a deadly poison in its effects on organisms of any kind."

A New Early Peach. — The American Agriculturist has received from Mr. S. G. Bilgen, of Littleton, Halifax Co., N. C., specimens of the Beatrice peach, a seedling raised by Thomas Rivers, of Sawbridgeworth, England. Like all early peaches it is small, but of high color, very fragrant, and of good quality for a very early variety. Mr. Bilgen finds it at least twenty days earlier than Hale's Early, and possessed of superior shipping qualities.

The Rose Slug. — A writer in Scribner's Monthly recommends powdered white hellebore for the rose slug — the same as has proved so effectual for the currant worm. It is dissolved in water, a half pound to a half barrel, and applied with a syringe. Over this, while wet, a little dry powder should be dredged.

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

THE DECORATION OF DRAWING-ROOMS AND DINNER-TABLES WITH FLOWERS. — The illustration represents a stand prettily arranged with flowers and fern fronds for the stem of the stand. A climber should be used and twined artistically around it. Japanese honeysuckle will be found suitable for the purpose, also small ivy, and such a climbing fern as *Lygodium scandens*. The custom of arranging fruit with the flowers does not seem so prevalent now as some little time back, when bunches of grapes were employed to hang over

FLOWER STAND.

among the fern fronds. The fruit seemed to change the whole appearance into a heavy-looking object. In dressing a stand, the pretty Adiantum, or Maidenhair fern, as it is commonly called, should be introduced among the bright colors of the flowers; but it should not be put in until it is really requisite to complete the decoration, as it fades sooner than the flowers. There are some pretty glass stands, with reflecting glasses at the base, on which may be placed a few waterlily flowers and leaves. This is refreshing and pretty. It has also some small

baskets suspended from the centre dish, which, filled with the pretty *Isolepis gracilis*, and a few rosebuds or any small flower, has a very pretty effect. The stands should be filled with wet sand or water, with a lump of charcoal in it. This, of course, keeps it in a state of purification, and in it the flowers will keep longer than in pure water, which has to be changed so frequently.

In the place of the stands for the dinner-table, plants are now almost universally used, and some of them have a very pretty effect. Light foliaged palms and ferns, with flowering plants introduced as a relief, are among the most suitable; placed in the new China pots and mossed around, they are very pretty. I have seen a sort of miniature tree fern used for this purpose, formed by placing in a small piece of a dead stem of a tree fern and covered with Selaginella, and it really is charming for the purpose, and sets one wondering whether it really has grown so, or been arranged by human hands. Some of the light-looking foliaged Dracænas are very suitable. The leaves of *Dracæna Macleayi* are of a bronzy metallic appearance, and form a striking contrast among the bright growth of the fern fronds. *Country Gentleman's Magazine.*

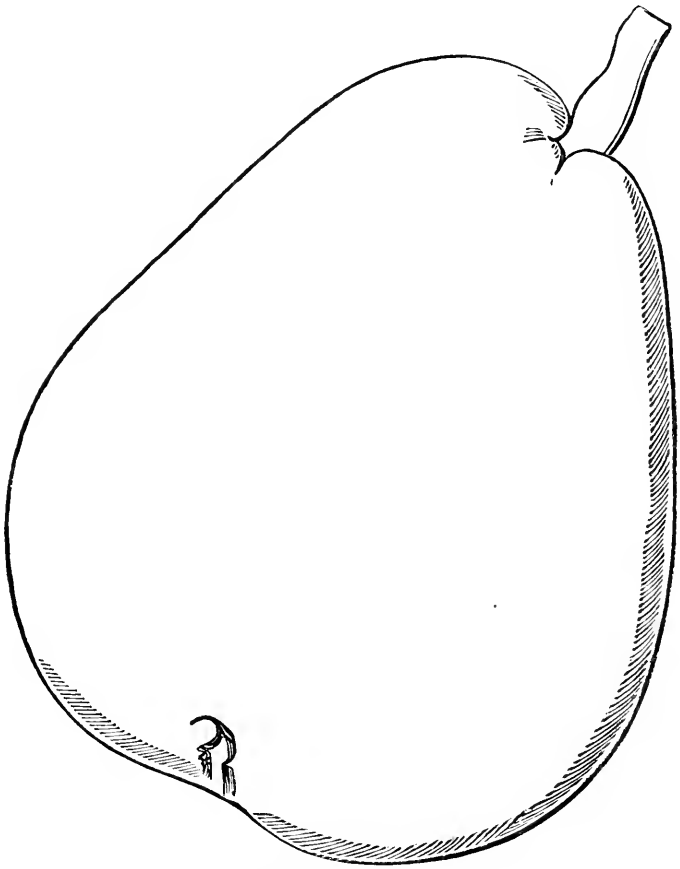
The Revue Horticole, for April 1, 1871, has just come to hand, the first number since the sixteenth of September, 1870, this long suspension having been caused by the war in France. The colored plate represents the *Prunus prostrata*, the branches covered with small flowers, of a deep pink color, and described as trailing on the ground, so as to form a carpet of flowers. The Roussanne Nouvelle peach is said to be a freestone variety of excellent quality, ripening the latter part of August. The Haricot intestin is recommended as a new bean, desirable either as a string bean, or for use in a dry state.

Velocipedes. — The Gardener's Chronicle thinks that the "bicycle nuisance" ought to be put down with a strong hand. Recently a van returning from a flower show, was overturned by one of these pests of the road being allowed by an incompetent rider to fall between the horses's legs. A load of beautiful variegated zonal pelargoniums which had just won an extra prize, was totally ruined, and three attendants were seriously injured.

Violets. — I supplement my series of violets, sent a few weeks back, with blooms of *V. californica*. It is a handsome sort with no scent, deciduous, and quite hardy. As to the complaint of shortness of stalk, you will see by the specimens sent that no complaint can be made of this variety. [The length of the stalk of the leaf was eleven inches, and of the flower ten inches.]
English Journal of Horticulture.

A Hindu Club has been formed at Madras, India, which holds out-door meetings at various places, including the Government Farm and the Horticultural Gardens. At these establishments the members have shown great zeal in examining and obtaining descriptions of the various grasses, cereals, and other plants.

Beurré de Fromentel Pear. — Towards the end of the past year we were favored with samples of the fruit of this fine pear, grown in the garden of a Belgian amateur. We found them of such excellent quality that we can heartily recommend the variety as one of best of its season. It was raised by M. Fontaine, of Ghelin, near Mons, Belgium, and was sent out some five years ago, by



Beurré de Fromentel Pear.

M. A. Verschaffelt, of Ghent. The fruit is large pyriform, of a fine color; the flesh white, perfectly melting, highly perfumed, exceedingly rich and sweet. It is in perfection during October and November, and the first half of December, and is then one of the most delicious pears ever eaten.

Gardener's Magazine.

The Public Gardens of Paris were re-opened on the 13th of June, and preparations were commenced for replanting with trees the Bois de Boulogne.

PRIMULA JAPONICA. — Hail! Queen of the Primroses! for so its introducer designates this lovely flower, which is hardy as a peasant, resplendent as a princess. It is just ten years since Mr. Fortune met with it in Japan, a basketful of blooming plants having been brought to his door; they were of course secured, but the journey home was too much for them, and despite every care, none reached England alive. Ever since that time endeavors have been made to introduce this lovely plant, but till now without success, since the seeds have been found to lose their germinating power in the course of transmission to Europe. At last, however, perseverance has been rewarded, and from seeds sent to Mr. Fortune, plants have been raised in the establishment of Mr. Bull, of Chelsea. Our gardens have thus secured a perfectly new, thoroughly hardy, and exquisitely lovely primrose, one which is not only valuable for its intrinsic beauty, but doubly valuable as placing in the hands of the hybridizer important new materials, which will no doubt soon be turned to good account.

It is a vigorous-growing, stemless perennial, with leaves six to eight inches long, and about three inches broad. The scape is from a foot to a foot and a half high, bearing four or five distinct whorls of from ten to fourteen flowers. The flowers are about an inch in diameter, of a lively magenta color, the individual flowers being very suggestive of a highly-colored *Phlox Drummondii*. When first exhibited to the Royal Horticultural Society on May 3, it was voted a first-class certificate by acclamation.

The following distinct forms have already been noted: —

P. japonica lilacina. Flowers rather larger than the type, eye surrounded by a zone of orange-red, shading to a beautiful rosy lilac, the outer portion of the corolla lobes being white. This very chaste variety has received a first-class certificate.

P. japonica alba. Flowers rather below the average size, white, with a golden yellow zone around the eye.

P. japonica carminata. A very distinct form; flowers pure carmine red, with a maroon-crimson ring around the eye.

P. japonica splendida. Habit dwarfer, denser, and more stocky than the type; flower above the average size, deep bright magenta, zone of a rich bright crimson, surrounding a broad and open eye, which shows the yellow interior of the tube. One of the most brilliant varieties.

P. japonica rosea. Very distinct, with flowers of a lilac rose having a crimson ring round the eye.

Plants which have been standing all the winter, fully exposed, in the trying atmosphere of London, are perfectly healthy, and came into bloom about the middle of May, two or three weeks later than plants which had been potted and flowered under glass. *Florist and Pomologist.*

THE Editors of "Tilton's Journal of Horticulture" cordially invite all interested in the various branches of horticulture to send questions upon any subject on which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to inquiries in regard to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to horticulturists.

We would especially invite our friends to communicate any little items of experience for our "Notes and Gleanings," and also the results of experiments. Such items are always readable, and of general interest.

We must, however, request that no one will write to the contributors to our columns upon subjects communicated to the Magazine.

Anonymous communications cannot be noticed: we require the name and address of our correspondents as pledges of good faith.

Rejected communications will be returned when accompanied by the requisite number of stamps.

MACLURA. — You can grow Osage Orange, or any other hedge, by planting the seeds where you want the hedge; but the result will be far inferior to that produced by planting seedlings of one year's growth. Buckthorns are better two years old. To be perfect, a hedge must be uniform throughout, and this is much more easily accomplished by setting plants than by sowing seed. It must be set in a perfectly straight line, or it will always be an eyesore to you. If not thick at the bottom it will be worthless; and the only way to make it so is to head it down in winter, and keep on until it is thick. The Osage Orange is not quite hardy enough even for a hedge plant as far north as Boston.

E. S. — It would be very singular if in all that we have published in regard to the President Wilder Strawberry, we had never told anywhere whether it has pistillate or a staminate flower. In the very first description we ever published, in our Vol. IV., p. 150, for September, 1868, it is said that the flowers are perfect. We agree with you that this is a point of special importance to be known by those who would successfully cultivate a new strawberry.

THE SEASON IN IOWA. — We have fine weather, and a good prospect for crops, excepting potatoes, which the bugs are eating all up. We shall quit the cultivation of potatoes, unless on a very small scale. Of course you are aware that this is *locust year*. The roar of them at midday is like unto a train of cars coming towards you at full speed. My nursery will be nearly all killed by them; the only tree that they appear to show any mercy to is the pear.

Strawberries with me have been a great crop. Raspberries now ripe for some time, and also a good crop. The bushes are loaded. The locusts, it seems, hunted all the birds away. Apples will be a fair crop with some. Orchards that are situated a good way from a timber belt are badly used up. Pears very few — the frost in April killed them, and cherries and plums.

Your reply with regard to the *bark-louse*, in the June number, is satisfactory. However, your experience does not agree with mine, for they attack coarse bark trees the most with me. The varieties they prefer are Red Astrachan, Cole's Quince, Keswick Codlin, and some coarse-barked seedlings. Alongside of those trees are Jonathan, Pound Sweet, Dominie, and very few lice you will ever see on them. I always looked on the lady-bird as a friend, but not as an enemy to the bark-louse. However, this must be true: I have two orchards; in one of them I have my garden; into this I allow no fowl to roam; lady-birds are very plenty, and there is no bark-louse to be seen on the trees. Not so with the other one. *T. D.*

GARRYOWEN, IOWA, June 29.

P. B. — It is difficult to keep cherry stones over the winter successfully, as they vegetate so early and at so low a temperature that the ground is frequently not ready to receive them. The best way is to plant them as soon as cleaned from the fruit; but here a difficulty arises, that the ground is apt to settle down so hard before spring, that the young seedlings cannot force their way through it, or grow only weakly. We have entirely overcome this by covering, as soon as sown, with two or three inches of coarse litter, which we raked off early in spring.

NEOPHYTE. — The gum trees spoken of in our last number are species of *Eucalyptus*, and natives of Australia. The *E. globulus* is known as the Blue Gum, and is largely planted in California for timber, as it is an exceedingly rapid grower. It will not endure the climate of New England. The Tupelo, or Pepperidge tree, is also called Sour Gum. The scientific name is *Nyssa multiflora*. It is remarkable for the bright crimson of its foliage in autumn. The *Liquidambar Styraciflua* has derived the name of Sweet Gum Tree from the fragrant juice which exudes from it when wounded. It is also called Bilsted.

O. L. — There have been different compositions recommended for applying to cotton cloth to render it transparent for covering hot-beds, etc., but they do not make a very durable covering. Perhaps linseed oil is as good as anything. Such coverings are cheaper than glass, but not as good, nor very durable, unless carefully used.

C. C. — Copperas is sulphate of iron or green vitriol, though the name has caused it to be confused with sulphate of copper, which is blue vitriol. Copperas has been recommended as a preventive of the black wart in the plum, and also as an application to the ground to promote the health of trees ; but we have used it freely for both these purposes without producing the slightest perceptible effect. Blue vitriol is recommended by European writers as a remedy for mildew on rose bushes, two ounces dissolved in a large pail of water ; but we have never known it tried, the common remedy of sulphur, applied exactly as for grape mildew, always proving effectual.

G. R. E. — The reason you did not succeed any better in grafting your plum trees is, that you did it too late. Plums and cherries must be grafted much earlier than apples and pears. In this latitude about the last of March is a good time, and it can then be done with as much certainty of success as apples, which, to a skilful grafter, means that the losses will be so few that he would not pay anything to have them insured.

MALUS. — Lime, plaster, and wood ashes have been recommended as preventives of bitter rot in apples. The apple is well known to require a proportion of lime in the soil, so that in those destitute of it a dressing of air-slacked lime would be beneficial ; but it could do no good to add lime to a soil already containing plenty. If troubled with bitter rot, it would be best to avoid varieties such as the Pennock, which are badly affected by it.

M. L. A. — It is said that the rose-bug may be captured by shaking the trees which it infests over a sheet just at night ; but we have never tried it. The method generally pursued, and supposed to be the only effectual one, is to pick them off by hand into a bucket of water, and then crush or scald them.

F. R. A. — New strawberry beds may be made as soon as the new runners have made sufficiently firm roots to be transplanted, say in August here. Select the oldest runners of this season — that is, the one nearest back to the parent plant. You will get a tolerable crop next year ; but this plan is not as much practised as formerly, and never by large growers for market. If you take up the same plants in spring and set them carefully, first cutting off the ends of the roots, in a shallow hole, broad enough to receive the roots without crowding, you will lose fewer plants, and get about as much fruit. They must set early. Make a little mound in the centre of the hole, so that the bottom is shaped like an inverted saucer, and spread the roots carefully over it. Cover the roots with earth, but before filling up pour in a quart of water, and then finish filling ; and you ought not to lose a single plant.

S. G. — The secret of the large Seckel pears which you saw at the exhibition may be told in one word — *manure*. This variety will perhaps bear more manure than any other. Dig in a good dressing around your tree early in spring, and when the surface of the ground begins to dry, mulch with coarse stable manure. If that does not give as large fruit as you want, try watering with liquid manure.

THE SEASON IN TEXAS. — Chinese Chrysanthemums are now in full bloom. Last year and the present we had drought continued through the months of April and May. Chrysanthemums matured their buds and bloomed. The flowers are not so rich as they are in October and November. The contrast between Chrysanthemums, Gladiolus, *Salvia splendens*, and Scarlet Geraniums, is very striking.

We have been visited recently with heavy gales and torrents of rain, which blew down and turned aslant many of our shade trees, and devastated the vegetables. Potatoes not harvested are rotten from the excessive moisture and heat. Seeds just ripe are washed away, and many plants killed, by the excessive heat and rain. To add to this, the Spanish fly, or potato bug, is devouring everything before it. Our Trophy tomato plants, loaded with fruit on the point of ripening, are killed by the wind and rain. *S. E. B.*

CLEAR CREEK STATION, GALVESTON CO., TEXAS, June 19, 1871.

MACRO. — You can set your fuchsias in the open ground in the spring; a partly shaded place is better than one exposed to the full glare of the sun. We have known them succeed very well trained on the northerly side of a fence. In autumn dig them up, place in pots or boxes of earth, and put them in the cellar. Of course this will hardly be as satisfactory as if they were grown in a green-house, and you cannot expect to get "specimen plants;" but those who have not the convenience of a green-house can produce a good many handsome flowers in this way. It is best to dig them up in autumn before the frost has killed the leaves; but if it does it will not, unless very severe, destroy the roots and woody stems. When planted in spring they should be headed in severely.

RALPH. — The Van Mons Leon le Clerc pear is seldom seen now. When introduced it was heralded with the most extravagant encomiums as the finest of all pears, and, so far as the fruit goes, it certainly is one of the finest; but the tree is so subject to cracking and cankering of the bark, causing the limbs to die away, that it was long ago discarded.

B. — You can ascertain where to buy roses to the best advantage by consulting our Nurserymen's Directory, and finding who makes roses a specialty. The object of giving the specialty is to answer just such questions as yours.

NOTES ON CHERRIES.

By Marshall P. Wilder, President American Pomological Society.

The present season has been remarkably favorable for this fruit, more so than any other since 1860. Not only has the crop been large, but the weather has been uncommonly favorable for its ripening in perfection, being fair and clear, and unusually free from showers and from damp, "muggy" weather, of which we are apt to have more or less in the cherry season, and which is well known as the prolific cause of rot. Hardly a cracked or rotten cherry has been seen, even among those kinds most predisposed to rotting, like the Napoleon, and from the same cause the season has been unusually prolonged. Although the robins have been quite as numerous as usual, they have kindly spared a larger part of the crop to the growers than in most years. Perhaps the cause may be a disposition to change their diet from fruit to vegetables, for I have noticed that they have taken many more of my peas than in former years. There has been no gumming of the trees, from which it is inferred that the dry weather of last year was favorable to the trees, ripening the wood perfectly.

The excellent crop of cherries this year will undoubtedly stimulate the planting of cherry trees; and to aid in the selection of the best varieties I have been induced to put together these few notes, which, if not wholly new, will be quite new to many readers of the Journal. Indeed

there are many fruit growers to whom — they having commenced the business since the time when the cherry was produced so freely and abundantly — some of the varieties are almost unknown.

Black Eagle stands first in quality; not an abundant bearer, but only moderate. As a sweet cherry, when fully ripe, nothing can ever equal it, and even when partially ripe, it is sweeter than many others at their best. The trees are very hardy, not of the largest size, but stout and stocky, and of very handsome form. The fruit never cracks or rots.

Downer's Late maintains its regular character. Few cherries are of so reliable a character, and, like the Black Eagle, it is free from rot or cracking. Quality, "best."

Black Tartarian, once so popular with us, has, in a measure, gone out of cultivation, owing to the tenderness of the tree. It is somewhat remarkable that a variety coming from a cold region like the Crimea should be so tender, and it would be interesting to know whether it is equally so in its native home; but on this point we have no information. Last year and this the tree has been unusually healthy, and the fruit has been equal to any produced when the variety was at its best estate. Though not quite equal in quality to the Black Eagle, it is well known as the largest and handsomest of all the black cherries, excepting possibly the Monstreuse de Mezel.

Downton. This is one of the best of Mr. Knight's cherries, and to our taste the finest flavored of all the pale kinds. Though not large, it is of full medium size, very handsome, and not liable to crack or rot. It makes a tree of the largest size, somewhat resembling in habit the Elton, another of Mr. Knight's seedlings. The tree is, however, a little tender, though not so much so as Black Tartarian.

Black Heart. There is a propensity among careless and ignorant cultivators to apply this name indiscriminately to every black cherry. The true Black Heart is, however, quite distinct, and a most excellent variety, remarkably juicy, and of rich, vinous flavor. The tree is hardy, giving at least a moderate crop, even in the most unfavorable seasons.

Napoleon Bigarreau has done as well this year as ever under the most favored circumstances, being entirely free from the cracking and rotting to which it is more subject than any other kind. Though this is the largest and handsomest of all the white cherries, it is not above "good" quality, and on account of this, and its liability to rot, cannot be recommended for cultivation. Among all the Bigarreaus, or firm-fleshed cherries, this has the hardest flesh. The tree is healthy and vigorous.

Belle d' Orléans. The earliest of all. Tree hardy and vigorous, growing to a large size. Fruit medium size, pale, flesh tender and sweet, but not of high flavor. Always bears well.

Kentish. A very valuable fruit for kitchen use. The tree does not attain a large size, and is of rather slender, drooping habit, but perfectly hardy. It will produce a larger crop from the same ground than any other cherry with which I am acquainted. It is the most profitable for market of all cherries, and is well known as succeeding at the West where all others fail. The stone adheres to the stem with remarkable tenacity, so that it may be drawn out of the fruit, rendering this variety particularly valuable for cooking or drying.

Red Jacket. One of Dr. Kirtland's seedlings, and one of the hardiest and healthiest trees, of large stature, entirely free from cracking of the bark, gum, or other disease. Fruit light colored, a little lighter than the Downer, and not quite so large, of good, though not high quality, but especially valuable on account of its healthiness.

Monstreuse de Mezel, or *Bigarreau Gaubalais.* A black cherry of the largest size, very handsome, inclining to bigarreau flesh, though not so firm as Napoleon; of first quality for a bigarreau, and tolerably productive. Tree large and healthy, but not of as handsome form as some others.

Black Hawk. Another of Dr. Kirtland's, very handsome, large, black, flesh somewhat firm, quality "very good," tree very hardy and tolerably productive.

Triumph of Cumberland. Originated in Cumberland County, Pa. Fruit large, dark crimson, flesh rather firm, handsome, hardly to be classed as "very good." Tree hardy and tolerably productive.

Reine Hortense. Tree healthy, with slender wood inclined to weep; not very productive. Fruit of the largest size, light red, flesh tender and juicy, quality "very good."

Late Duke. An old variety, which has never been cultivated as much as it deserves, both for its excellent quality, for dessert as well as kitchen use, and its ripening late, after other sorts are gone. It also possesses the same valuable characteristic as the Kentish of permitting the stone to be drawn from the flesh. The stone is remarkably small. Fruit light-red, and produced very abundantly.

Governor Wood is exceedingly productive, handsome, and of excellent quality, but its behavior here has been quiet unlike what we hear of from the West, as it has rotted with me.

We might extend this list to great length, but it already includes most of those which we deem most desirable for cultivation here, and in

sufficient number to satisfy the wants of the great number of cultivators. We will, however, mention Elton, Coe's Transparent, Bigarreau or Yellow Spanish, Champagne, Robert's Red Heart, Werder's Early Black, Belle de Choisy, Belle Magnifique, and Mayduke, as cherries of much merit and possessing excellent characteristics.

[We know that our readers will be interested in Mr. Wilder's excellent article, for it is the best, indeed the only, descriptive list of cherries we have ever given, as we have not had, since the Journal was commenced, so good a cherry year. Besides the kinds described by Mr. Wilder, there are a few that we wish to mention, first of which is the *Florence*, which we esteem one of the best of all. It is sufficiently firm to be classed among the bigarreaus, though not so firm as, like the Napoleon Bigarreau, to lay hard on one's stomach, nor even so firm as the Bigarreau or Yellow Spanish, which it much resembles, though a little later and superior in quality. *Early Purple Guigne*, the earliest of all, and of fine size and quality, has proved with us so tender in the buds that it cannot be relied on for a crop. Among the hardiest kinds, which can be cultivated even on the rich soils of the West, is the *Morello*, or *English Morello*, which, though quite acid when not fully ripe, then acquires a rich, vinous flavor, and is as valuable for dessert as it is before for cooking. It is one of the latest kinds, and in England is prized for cultivation on north walls, so as to prolong the season. *Buttner's Black Heart* is a large cherry, with firm flesh, dark red, and, though not of the best quality, valuable as a late kind. *Royal Duke* is one of the richest-flavored cherries we have ever tasted, far excelling the Mayduke. — Ed.]

DELPHINIUM NUDICAULE.

By Louis Guerineau, Cambridge, Mass.

The Larkspurs hitherto cultivated in our gardens have been in color confined to the different shades of blue, purple, or white, but in the species now under notice we have a flower with sepals of orange red, the petals being yellow, and which is not only valuable in itself, but will doubtless afford the means for the production of varieties of new and beautiful colors. For the specimen from which our illustration is made we are indebted to Mr. Guerineau, the skilful gardener of the Botanic

Garden connected with Harvard University, at Cambridge. Mr. Guerineau says in a note to us, dated July 25, "It is a native of California, and I should call it a biennial if not a perennial, for the specimen

DELPHINIUM NUDICAULE.

you have was sown in 1869, but did not germinate before the next spring (probably the seeds were not very fresh). It flowered all through the summer, and gave me sound seeds, which were sown in the follow-

ing autumn, and came up very freely this spring, began to flower in June, and has continued in succession until now; for, after a stem has grown to perfection several others start from the base, and flower again, and so on. The old plant which flowered last year grew up again this spring from the slender, fleshy, tuberous roots, and continues to flower.

"I believe it hardy, for the only protection it had was a board and a few leaves, which did not keep the frost out."

A remarkable characteristic of this plant is described in the following note from Dr. Gray, Professor of Botany in Harvard University, which we find in the Gardener's Chronicle, and which is none the worse for having crossed the Atlantic and returned, though we could wish that it had been first published nearer home. "Has any one noticed the striking instance of hypocotyledonary germination which is exhibited, I believe, uniformly by *Delphinium nudicaule?* You have the plant in cultivation, and it has lately been figured in the Botanical Magazine. It is remarkable as being a red-flowered Delphinium. *D. cardinale*, early figured in the Botanical Magazine, we here suppose to be only a variety of it — at least the Californian botanists are unable to discriminate two species. The germination of *D. cardinale* should be looked to in this connection. Yet for all I know the peculiarity may be shared by other or all tuberous-rooted species. My attention was called to this peculiarity by the gardener of our botanic garden, Mr. Guerineau. In germination the radicle lengthens in the usual way, and raises a pair of ovate cotyledons, which attain full development. But no plumule appears between them; so that the primary axis consists only of the first, or hypocotyledonary internode, and this moreover has only a transient existence. But at the very junction of this internode with the proper primary root, i. e., at the true collum, a thickening soon takes place, originating the tuberous root; and from this, at the very base of the radicle, or, as we should rather say, caulicle, and by its side, springs a long-petioled leaf, and soon a second one, and so on, establishing the vegetation of the plant, the primary axis taking no further part, and soon dying away. I have a dim memory of having read an account of something like this in some other Ranunculaceous plant, but I cannot recall it. *A. Gray, Cambridge, Mass.*"

[Irmisch in the "Bot. Zeit.," January 1856, describes and figures the germination in various species of Ranunculaceæ, and some of which resemble the Delphinium above mentioned. A translation of Irmisch's paper will be found in "Ann. Sc. Nat.," ser. 4, t. 6, p. 27. Eds Gardener's Chronicle.]

BLUE GLASS.—II.

By Robert Buist, Philadelphia, Pa.

Since I addressed you on this subject I have had the pleasure of a visit to the grapery of General Pleasanton, which I had not seen for the past three years. The growth and verdure of the vines were all that is claimed for them. They were a dense mass of wood and foliage. The crop was partly cut, and the Hamburgs were black, *jetty black*, under the mass of shade. What say those who claim light and sunshine upon their grapes "to color them"? The stems of many of the vines were nine inches in circumference at twelve or fifteen inches from the ground. The vines have received very simple pruning indeed, merely cut at random the past year or two. The outside borders are elevated, of the very richest nature, and have air pipes through them; the roots of the vines are all *outside*. The inside of the wall of the house has lately had a coloring of blue. I give you the growth of the vines and the coloring of the fruit, that your many intelligent readers can judge for themselves; I make no conclusion. I will, however, during the coming season, put the matter of blue colored glass for the growth of plants fully to the test.

In regard to its application upon the growth of young animals I must admit want of judgment, saying, however, that the Alderney calf of eighteen months is certainly a great beauty. You gaze upon him, placing his age at two or three years, and fine at that. I measured him around the withers and found him seven feet. Any of your readers who are judges, and have stock of that kind, can apply the line, and make comparisons, and give you the results. It must be admitted that the general is a very generous feeder to all his stock, trees, plants, and vegetable crops, which is perfectly evident, independent of the prismatic influence of blue glass.

Rosedale, August, 1871.

FERNS IN ROOMS.

Many ferns may be grown in rooms with perfect success. One of the best of these is *Pteris tremula*, which forms long, delicate, wavy fronds. *Pteris cretica albo lineata* also grows well; but the marking is not as well defined as in a green-house.

Many of the maiden-hairs (*Adiantum*) also succeed. *R.*

RASPBERRIES, NEW AND OLD.

By B. Hathaway, Little Prairie Ronde, Mich.

The season just closed has been one of abundance of this fruit at the West; and having grown quite a number of the leading sorts, with a view of testing their intrinsic and relative value, and having noted carefully their characteristics, the occasion is opportune for giving the results of my observations.

Doolittle's Improved. — This long-time standard sort continues to be grown, and when new plantations are being made, is more largely planted than any other of the black caps, except, perhaps, one or two of the new kinds. The fruit is of good size, and the plant hardy and productive.

The canes do not have so good a habit as some others, their want of elasticity causing them to be broken down by the wind, or by cultivation. This, on strong soils at least, is quite a serious objection to this variety.

Seneca. — This sort is distinguished from the foregoing, mainly by a different and a better habit of cane, and a few days later ripening of the fruit. I do not find that it possesses any advantage in size or flavor over the Doolittle, and the dull black of the berries rather detracts, I think, from their looks, in comparison. Still I count it one of three or four of the best black caps, and it can hardly fail to give satisfaction.

Miami. — This is sometimes called the Old Miami, or Small Miami, to distinguish it from the Collinsville Miami, or Mammoth Cluster, and has some points of merit. It is several days earlier than the Doolittle, about with Davison's Thornless, not quite so large a berry as either, but a hardy and productive plant, with a habit of growth that commends it to favor.

Canada Black Cap. — This I find quite distinct, and some days later than the Doolittle, but it possesses no advantage in size, flavor, or productiveness over the old sort. Had we not a more valuable kind in the Mammoth Cluster, its lateness would make it of some value.

Davison's Thornless. — It has been claimed for this variety that it is as productive as the Doolittle; but it must be conceded that to get the same vigor of cane, it must have some advantage of cultivation over that variety, at least this is my experience. Still its comparative freedom from thorns, its fine, large fruit, and early ripening, — before

the Doolittle, — will well repay some extra labor, at least for the garden, and in field culture it has, I believe, in some sections, proved quite satisfactory.

Could we have a variety like this, free from thorns, with the vigor and habit of the Mammoth Cluster, it would, indeed, be an acquisition beyond price. Who will be the fortunate agent in its production?

Mammoth Cluster. — While the advocates of verbal accuracy will object to this name, and with some valid reason, it is too late, I fear, to displace it in the popular vocabulary with that of the Collinsville Miami, whatever may be said of the justice of such a procedure.

That it is the most valuable of our black caps, there can be but one opinion. Coming, as it does, a week or more after the Doolittle, with its fine, large berries, vigorous canes, and most excellent habit of growth, it leaves but little to be desired in the way of a raspberry, except freedom from thorns.

That the great superiority of this variety was not generally recognized by horticulturists, so long as it had been in cultivation, before it was brought out as the Mammoth Cluster, is not a little remarkable.

Purple Cane. — This sort is without doubt a true hybrid between some variety of the black cap family, *Rubus occidentalis*, and a variety of the red raspberry, *Rubus strigosus*. It propagates itself by suckers, as also by rooting the tips. It has given me the most satisfaction, and the best returns of any red raspberry I have grown, except the Philadelphia, and is equally productive with that variety, and in season, a week earlier.

It is too soft for transportation, but for family use it is exceedingly valuable. Its fine, elastic canes, that seldom get broken, either with the wind or by cultivation, are not the least of its merits.

Ellisdale. — This has something of the character of the foregoing, and has been called an improved Purple Cane, though just where the improvement comes in is not so clear. It has a rather more vigorous growth and a similar cane, but the fruit with me has not been so large, nor so abundant, and I fancied not so juicy and good, though possibly more firm than the old Purple Cane.

Naomi. — This new variety is thought to be by some, I believe, identical with the Franconia. It is, however, different from that variety, if my Franconia is true. The Naomi is more productive, a larger berry, and the cane is more hardy, though I doubt if it will go through our severe winters, without protection generally, at the West.

Kirtland. — This old sort has some points of value. It is the earliest raspberry I have — a little earlier than Purple Cane and Davi-

son. It is more hardy than any other sort of its family that I have tried, except Philadelphia, and possibly Arnold's Hybrids. It is quite productive, though the canes are not so vigorous as is desirable, and it has the common fault of its family — excessive suckering.

Clarke. — This sort has a much stronger cane, and larger fruit, of excellent flavor, and the plant is quite productive. It however is not quite hardy at the West without protection, and it also suckers badly. There are a few localities, like the peach region on Lake Michigan, where it would probably succeed, and be safe to plant for market purposes, but generally it should only find a place in the garden of the amateur.

Philadelphia. — This is the only red raspberry we have yet that has proved hardy enough for extensive planting here, and its value is only beginning to be understood. Several reasons have conspired to prevent small-fruit growers from investing in this variety. A well grounded distrust of the hardiness of *all* red raspberries, the dearness of plants, owing to their slow propagation, — as it makes comparatively few suckers, — and for the same reason, the longer time required to get a plantation into full bearing. This habit of making few suckers, is, however, one of the most valuable of its characteristics for the fruit grower, when a plantation is once established.

The black cap raspberry growing has been a little overdone, and the growers are considering the propriety of planting something else. And the Philadelphia is more promising of remuneration than any other red raspberry we have, and will continue to be until we have one of better fruit that is equally hardy.

Arnold's Hybrid (*Red*). — This new raspberry from Canada, I have planted a couple of years. In hardiness it is probably equal to the Philadelphia, while in vigor of cane and size of fruit it is inferior to most, and it has the objectionable habit of innumerable suckers.

Arnold's Hybrid (*White*). — This has some characteristics that give it more value. It has larger fruit, of a delicate flavor, and is more nearly white than any other raspberry I have seen. It is more hardy than most of its class, though I doubt whether it will prove as safe as the Purple Cane for general planting.

These are claimed to be hybrids, but I fail to see any evidence of such a character. They have the excessive suckering habit of their class, and will not root from the tips. These facts alone are conclusive to my mind where they belong, in spite of their fall-bearing tendency, which manifests itself occasionally in varieties of the *R. strigosus*, no less than in the *R. occidentalis*.

ORCHID CULTURE. — IV.

By John G. Barker, Cambridge, Mass.

Orchids on Blocks. — Many of the rarest and loveliest of orchids do not do well in pots or baskets. In their native habitats they are found growing in the branches of trees, with their roots clinging to the branches, or hanging in the air, from which they draw their nutriment. This mode of natural growth can only be imitated by placing such plants on logs of wood. Experience has proved that hard wood is the best. I use apple or oak; but the bark should be stripped off, the objection to leaving the bark on being, that when it decays, wood-lice and other insects secrete themselves behind it, and at night they will eat the young roots and flower-stems of the plants. The way to fasten these on the blocks is by copper wire. Have some nails, — copper tacks are best, — and some copper wire, — lead wire is preferable, if it can be got, — with some green *sphagnum* moss; place some moss on the block, and then the plant on the moss, and over the plant some more moss; then wind the wire around the log, holding on to the plant at the same time with one hand; but be careful not to draw the wire too tightly on the plant; and when it is done, trim off the loose ends of the moss neatly with a pair of scissors, and with a wire placed at one end of the block to suspend it by, the job is done. The size of the block must be regulated by the size of the plant; and when very large blocks are required, the weight of the block may be lessened by splitting it in two.

Watering. — Plants in pots or baskets, when newly potted, and just commencing a new growth, putting forth new roots and shoots, must be very carefully watered, and then only around the edges of the pots or baskets, and the plants not wet at all. For this purpose a small pot with a long spout attached, without a rose, will be the best, then you have complete control of the quantity to be given each plant. Orchids must not be watered indiscriminately; they must be watched closely, and only watered as they require it. At the base of each of the new pseudo bulbs will be found a sheath, which, holding water, will have a tendency to rot the new shoot, more especially when the weather is dull. The sheaths may be carefully torn open, so as to let the water escape; but as the pseudo bulbs increase in size, these sheaths will decay, and may be removed altogether, and the plants can then be watered more copiously. When they have attained to their full size, water

should be withheld gradually until autumn, and then no more given than will keep them from shrivelling; and during the winter months but a very small supply will be necessarry.

Syringing. — The same precaution as described for watering must be used. In summer the syringe may be used both morning and evening, but in autumn only in the morning; and to create a nice, moist atmosphere in the evening of such days, the paths and pipes only should be syringed. In syringing, care must be taken not to wet the flowers, as water will injure their beauty very much.

Soils. — The necessary soils are fibry loam, peat, sphagnum moss, leaf mould, charcoal, silver sand, and cow-dung, and for drainage a good supply of potsherds, broken up into two or three sizes.

Fibry loam can be best obtained from an old pasture; the surface, being taken off from two to three inches thick, is the very best for this purpose. It will only require to be cut in small pieces and used in that state.

Peat. — The best I have ever had is from Mr. George Such, the successful orchid grower of South Amboy, New Jersey, but I am told it can be got nearer here; but I doubt if it can be obtained any cheaper, his price being only two dollars per barrel. This also must be chopped in pieces and pulled apart with the hand; after that it should be passed through a fine sieve, and what remains in the sieve is what is required for orchids. The fine which passes through may be used for azaleas, etc.

Sphagnum Moss is found very abundantly in boggy marshes. It must be collected in dry weather, and stored in a dry shed until wanted. This must be chopped up with a fine, sharp hatchet, passed through a fine sieve to take out the dust, and then it is fit for use.

Leaf-mould, as is well known, is made of leaves that fall in autumn. For orchids it is best not to be too much decayed. For terrestrial species, such as Bletias, Cypripediums, etc., this forms a large part of the compost.

Charcoal is very useful to mix with the loam, peat, and moss, also to use on the top of the crocks for drainage. Break it in pieces the size of a walnut, and use it as required.

Cow-dung. — This should be collected from the pasture in a partially dry state, laid out on a floor until fully dry, and stored away in boxes or barrels until required for use.

Drainage. — A good supply of broken garden-pots is the requisite in this case. When they are broken, sort them into three sizes, using the largest in the bottom of the pot, the second size next, and the third

last. Orchids cultivated in pots must be well drained, the pot generally being half filled with drainage. There is nothing that will destroy the roots of orchids so quickly as stagnant water; therefore it is of the greatest importance that the closest attention should be given to this very important part of the work.

THE HARDWICKE NECTARINE.

THE specimen from which our illustration is made was kindly sent to us by Thomas J. Pullen, Esq., of Hightstown, N. J. The variety originated at Hardwicke House, Suffolk, England, and is one of the hardiest and best. Medium size, roundish, a little one-sided, suture distinct, mamelon slight, with a little of the pistil persisting on the apex, which would probably not be the case in out-door culture, this specimen having been grown in the orchard-house; basin of medium depth

THE HARDWICKE NECTARINE.

and width, skin somewhat coarsely granulated, greenish yellow, with apple-like streaks or clouds apparently beneath it, and also streaked and dotted with light and dark red towards the sun, and a few slight russety streaks and patches. Flesh greenish, with a little red at the stone, from which it parts freely, melting, juicy, and fine-flavored. Leaves with globose glands.

DWARF OR STANDARD PEARS?

By David Z. Evans, Jr., Chesapeake City, Md.

As this question has been so thoroughly discussed by many different pear culturists, in almost all sections of the country, with such varied decisions, what little I can say on the subject, obtained by experience, will not, I fear, tend to enlighten growers, on account of the entirely opposite theories promulgated and made known through the columns of the various periodicals devoted to this and kindred matters of interest to the fruit grower.

In the first place, I contend that to dwarf a tree is unnatural, causing it to produce fruit before Dame Nature intended it to, thus tending to injure the growth as well as the fruitfulness. I do not deny that some few varieties of the pear do best as dwarfs, such as the Duchess, and a few others; but the majority do better as standards, bear almost if not quite as soon, make better, larger, and more shapely trees, and last, but by no means least, are not so liable to be attacked by the blight, and the many other diseases to which the dwarf is undoubtedly subject; and this, if nothing else, should be sufficient inducement to plant standards in decided preference to dwarfs.

From notes and gleanings here and there, I find that the dwarf is becoming in bad repute among nurserymen as well as planters; and thus I find that I am not alone in my depreciation of the value of the dwarf, or in my estimation of the merits of the standard as suitable to cultivate for profit, on either a limited or extensive scale.

As an indorsement to what I say, I will mention a case which is not uncommon, which occurred on our grounds. In our young pear orchard, which is composed of several different varieties on dwarf and standard stocks, we picked off of a Bartlett tree thirty-six as fine pears as could be wished for from so young a tree, while on a Duchess we obtained but four, and on another of the same kind but two, thus making a great difference in yield. Some other dwarf trees produced rather more, but of a poor quality. The trees were two years old when planted, and had been planted three years, making them but five years old altogether. I planted all of the trees, dwarf and standard, at the same time, gave all the same care and attention, cultivating market garden crops of different kinds between, and thus gave them the best of culture, with the success recorded. The Bartlett was a standard, while the Duchesses, which bore but three or four, were dwarfs. The

reason I take such positive grounds in my opinion of the dwarf is, that I am abundantly satisfied that it is not the sort for profit, as others, no doubt, will find from time to time. It will do well where it can be nursed, and a large amount of time expended upon it, and where a scarcity of space exists; but I would not advise any to plant the dwarf for profitable orchard culture.

Another fact, which is not all the fault of the dwarf, is its tendency to split the stock, especially in the fast growing varieties, unless below the surface of the ground; and if the tree has been grafted some distance above where it should be, to cover it with soil necessitates a deep place being made for its reception; and very often the roots are put into the cold clay subsoil, and the tree, if at all weakly, is almost always sure to die, to the chagrin of the planter. And I may here state that many of our nurserymen, who claim to be first class, do not pay sufficient attention to the grafting of their trees, not knowing, or not caring — I know not which — how much trouble, vexation, or loss of time, patience, or money they cause to the purchaser, their only aim being to sell their trees at a fair price, without any regard to their fitness to produce *first-class bearing trees.*

CUTTING AWAY THE OLD WOOD OF BLACKBERRY BUSHES.

By Sereno Edwards Todd, Brooklyn, N. Y.

I have noticed the recommendation of some of the pomological authorities around about New York city, to cut away all the old blackberry and raspberry canes close to the ground, as soon as the fruit is gathered. Such authorities assume to know far more than all the outside world; yet I think such a recommendation is an egregious error, and if put in practice, the productiveness of the bushes thus treated will be seriously impaired. Let producers of blackberries and raspberries adopt such a practice, and they will soon perceive the injurious effects on the hardiness of their bushes, and in the production of inferior crops of fruit, for the reason that such a premature removal of the old wood interferes with a very important habit of the bushes. From the commencement of the growing season until the fruit is fully ripe all the energies of the bushes are concentrated to the accomplishment of this one object — the perfect development and maturity of the fruit.

The circulation of the sap has all been towards the leaves. The roots are so exhausted at this period — when the fruit is fully ripe — that they are poorly prepared, after having produced a crop of fruit, to develop a new system of canes for the following season, if the old wood were cut away. As soon as the fruit is gathered the circulation of the sap is reversed, so that all the remaining energies of the bushes are directed to the strengthening of the roots. The leaves on the old canes play an important part in this operation, as the sap in them goes down into the roots before the leaves are cast, to aid both in strengthening the roots and in developing new canes. Hence, if the old canes are cut away before the leaves have fallen, the hardiness of the bushes will be more or less injured. But as soon as the leaves on the old canes are so much faded that they are about to drop, the old canes may be removed without any injury to the future productiveness and hardiness of the bushes.

It must be remembered that the canes of blackberries and raspberries are *biennial*, while the roots are *perennial*. Dame Nature, therefore, has provided that the fruit-bearing canes of the present year must remain where they grew until the canes which are to yield a crop of fruit next season stand by their side fully developed, and ready to receive the mantle of their progenitors. As soon as the bushes have ceased to grow the old wood may be cut away without injury. Yet in localities where the bushes are exposed to deep snow, if the bushes are not laid down during the cold weather, the old canes will aid in keeping the new ones erect. The old canes should always be removed very early in the growing season.

BOUGAINVILLEAS, ETC. — One of our contemporaries, who does not know of any Bougainvilleas flowering in American hot-houses, might have seen at the exhibition of the Massachusetts Horticultural Society, on the 4th of March last, no less than three species, viz.: *spectabilis*, *splendens*, and *speciosa*. They were from the green-houses of Mrs. T. W. Ward, at Canton, Mass., a venerable lady, whose admiration of beautiful flowers is as fresh and enthusiastic as a young girl's, and were grown by her skilful gardener, Joseph Clark.

We may add here that the choice and rare flowers which Mr. Clark has so often contributed to the Massachusetts Horticultural Society have been the admiration of all, not less for their intrinsic beauty than for their tasteful arrangement, and well deserve the honorable position given them. Of the last exhibition, on the 29th of July, we can only say that Mr. Clark surpassed himself. Two broad dishes, each with a tall vase in the centre, were filled with the finest gloxinias, roses, stephanotis, allamandas, hoyas, begonias, fuchsias, caladiums, lapagerias, fittonias, etc., the whole set off with the delicate foliage of ferns and lycopodiums. We might go on to fill a page with the names of similar varieties, but will only mention the finely-grown gloxinias exhibited at the annual rose show, of the following varieties: Monsieur Cearcenac, Juliette Vallerand, Charles Raes, Guido Reni, Rose Mutabilis, Claude Lorraine, Couleur de Baker, and Madame Gabriel Brusheroff. Our readers will be glad to know that Mr. Clark has promised us an article on the cultivation of this beautiful flower.

Bougainvillea spectabilis was also exhibited by Mr. Clark and Mr. F. L. Harris, gardener to H. H. Hunnewell, Esq., in the spring of 1870, and has been flowered by Hon. M. P. Wilder.

Strawberries in Georgia. — Mr. P. J. Berckmans, horticultural editor of the Farmer and Gardener, published at Augusta, Ga., gives the following account of strawberries there this year: —

Barnes's Mammoth. — Very large; deep red; sweet, and highly flavored; rather soft. Ripens very early, at least six days before the older varieties. Should be grown only as an early berry. It will command a high price for a few days, but is unsalable when Wilson's Albany and other similar varieties appear.

Charles Downing. — Large and high flavored. A fine berry, but not very prolific.

Kentucky. — Very large, and regular in shape; bright crimson; flesh firm, sweet, and rich. Very vigorous, and very prolific. A great acquisition, and by far the best of the new varieties of this and last year. Promises to be a very valuable market variety. Originated by J. S. Downer, Esq., of Fairview, Ky. We find this variety to ripen its fruit a few days later than Wilson's, and not last longer, as claimed for it farther north.

President Wilder. — Very large; of fine, rich flavor; subacid. Plants very vigorous, but seem so far to lack fertility. Under the same advantages as the Kentucky, the yield of the latter surpassed it ten to one.

Seth Boyden, or Boyden's No. 30. — Very large, of beautiful and regular form; flesh rather soft, sweet, and can be classed as second rate. Not as prolific as desired. Will always bring a good price, owing to its large size and good appearance.

Stewart. — A variety largely cultivated near Norfolk, Va., for its earliness. Medium, round, sweet, not very firm. Valuable for an early variety, and same remarks apply to it as to Barnes's Mammoth. Should be cultivated in beds, not as stools, as it produces too many runners.

Of the best older varieties that are most cultivated, we make the following remarks: —

Agriculturist. — Yield small; quality better than usual; berries large.

Austin. — Large crop; berries large, but too soft, and of bad color for market. A good amateur variety.

Brooklyn Scarlet. — We gave it a fair trial in 1865 and '67; found it worth less. Kept a small patch of it, but had to give it up. Of no value whatever.

Durand. — Of very best quality, fine size, but unproductive.

Downer's Prolific. — Inferior in all respects.

Fillmore. — Crop small; berries deep crimson, highly flavored. Unproductive.

Longworth's Prolific. — Early; large, and good. A good crop.

Lennig's White. — Good crop. As yet, the most delicately-flavored variety tested. Unfit for market, owing to its color. Desirable for garden culture.

Ripawam. — Very large, and finely flavored. A small crop.

Jucunda. — Large, exquisite, but almost an impossibility to prevent plants from burning up in summer.

Seedling Eliza. — Large crop. Desirable.

Starr. — Small crop. Fruit medium, highly flavored.

Triomphe de Gand. — Fruit and crop large; best quality. Valuable in certain soils.

Wilson's Albany. — Crop good. Fruit very large. Still unsurpassed as a market variety.

The following are worthless: —

Boston Pine, Burr's New Pine, Chorlton, Cutter, French's Seedling, Golden Seeded, Lady Finger, New Jersey Scarlet, Russell's Prolific, Stinger, Philadelphia, Victoria.

American Pomological Society. — We have received from Hon. Marshall P. Wilder the following reply to the inquiry of "Nurseryman," in our last number: —

"I have no authority to say what shall or shall not be done in regard to exhibitions of the articles mentioned by your correspondent, but I take the liberty to state what I understood to be the feeling of the society as expressed in a discussion on that subject during the session at St. Louis. That feeling was that no exhibitions of nursery stock and other articles for sale should be permitted within the place of meeting. Such exhibitions, with the trafficking which would inevitably accompany them, would soon compromise the dignity of the society as a scientific body. Besides this, by absorbing the time and distracting the attention of the members, it would take much from the interest of the meeting. The time at our meetings is so precious, that it is desirable to have the undivided attention of the members. It should be remembered that I give this opinion in an unofficial capacity. *Marshall P. Wilder.*

"July 29, 1871."

Lima Beans without Stakes. — Mr. McAfee, Superintendent of the University of Wisconsin Experimental Farm, informs us that for three years past he has grown Lima beans without poles or stakes, by persistent pinching back after they reach the desired height — about that of common bunch beans. He is confident the crop is very perceptibly earlier, and thinks it is increased in quantity; the plant being checked in its growth of vine, expending its energy in fruit production. On the farm we saw some so treated that were well loaded with fruit. *Western Farmer.*

Salt for the Strawberry. — The Norfolk Virginian is informed by a practical horticulturist that during an overflow from an extraordinary storm, a strawberry bed was partially covered with brackish water at the time when fruit was forming, and also that the occurrence stimulated the vines to greater perfection of fruit and general vigor — a discovery that may prove of advantage to fruit raisers in the vicinity of salt water.

Viburnum plicatum. — "W. C. B.," of the Mount Hope Nurseries, says in the American Rural Home, "This new Viburnum, or Snowball, promises to be of great value. It produces in great profusion large trusses of pure white flowers. The trusses are very compact, and the individual flowers have great substance. It has been but little propagated as yet, and consequently is not known. It may be regarded as a great acquisition to the list of flowering shrubs.

NOTES FROM VINELAND. — The prospect for a good show of late summer and autumn fruits here was good until Sunday, July 16, when a thunder-shower, accompanied by a tremendous gale, suddenly changed the prospect, at least as relates to pears and apples. Hardly less than three fourths of these crops were in a few moments blown from the trees. Bartlett pears, and some earlier sorts, may not be a total loss, but the Duchesse d'Angoulême, on which we specially pride ourselves, are worthless, except to feed to the hogs. Quite a number of pear trees were blown over or broken off. The superiority of standards over dwarfs to stand up unharmed against a high wind was once more made manifest. I hear of no standards ruined; the harm was all to dwarfs. Many peach trees were damaged, but the peach crop perhaps not materially injured, as most trees needed thinning. Grape vines, particularly those trained to stakes or to poor trellises, fared badly. There was a magnificent grape crop in prospect some weeks ago, and we may have a good one yet; but the rot has made its appearance, and considerable anxiety is felt as to the result. Some growers over a week ago estimated the damage already at twenty-five per cent.; and there is since no special improvement in the weather to note. Peaches are plenty; but so they are in Delaware, and per consequence, we do not count much profit on them. The blackberry crop is just closing out, at least of the Wilson, and has been satisfactory — the yield good and prices fair. Raspberries hardly did as well, though prices were better than last year. Three late frosts, and then a drought, with unusually hot weather while the crop was maturing, made the yield of strawberries light as compared with other years, and bad handling on the way to market still further extended the disappointment in some cases; but prices for fruit reaching market in good condition were splendid, so that a short crop in many cases was worth more than a full one in past years. Farm crops are looking well, — never better, — particularly corn and potatoes. The second growth of clover is better than the first, owing to the rains since June 18. Fruit trees, where cultivated through the drought, have made a fine growth. The Vineland Railway is now completed to Vineland (will soon be open to the Bay), and another year we hope for better marketing facilities, as well as a dearth of gales. The force of this last one, as should have been stated, was sufficient not only to damage orchards, but it blew down and demolished a church (Trinity, Episcopal), several dwellings, the new Vineland Railway car-house, unroofed various buildings, and on the whole, surpassed in violence any gale ever known here.

VINELAND, N. J., July 26, 1871. *Philip Snyder.*

IRON FOR PEAR TREE BLIGHT. — A correspondent of the Rural Messenger had a very fine Flemish Beauty pear tree that became affected by blight, first in one limb, which he removed, and then another was affected in the same way, until a considerable portion of the top of the tree was removed. Early the next spring he procured some scrap iron, removed the soil from the roots carefully, deposited the iron between them, and replaced the earth. There was no further progress in the blight, the tree continued to grow that season, and the next leaves and blossoms came out vigorously, no black spots appeared on the leaves, the tree bore finely, and no appearance of disease was seen on the tree afterwards. Others of his friends have used iron with similar advantage.

A FINE ORCHARD. — We lately enjoyed, with a part of the Fruit Committee of the Massachusetts Horticultural Society, a rich treat in a visit to the orchard of Messrs. F. & L. Clapp, in Boston (Dorchester District), where the celebrated Clapp's Favorite pear originated. The apple orchard comprises about two hundred full-grown trees, two of which were pointed out as being two hundred years old, both being still vigorous and productive. One of them girths thirteen feet. The ground between, and even under, the apple trees, is partly planted with currant bushes, mostly Versaillaise, from which three hundred bushels were gathered this summer. A large plantation of the Wilson blackberry had been ploughed up since we were there before, as being too tender to stand the winter. But the greatest attraction was the pear orchard, in which we saw many trees, among them the original one, of Clapp's Favorite, loaded with their large and beautiful fruit, at that time (August 7) fully grown, and almost every one such as ought to satisfy Dr. Houghton's desire for "specimen pears." Within a week from that time fifty bushels of this variety were gathered.

Messrs. Clapp have also a large number of seedling pear trees, just coming into bearing, raised from the best varieties, such as Urbaniste, Beurré Bosc, Beurré d'Anjou, Bartlett, Beurré Clairgeau, &c., among which they hope to find some of superior merit. It is impossible to imagine anything more beautiful than these seedlings, so refined and civilized in their appearance, without a trace of the wildness almost invariably seen in seedling trees; there was not even what Dr. Van Mons could call a "beau sauvageon" among them. There was one tree showing several fruits of pyriform shape, as smooth and round as if they had been turned in a lathe, which we quite fell in love with, declaring to Messrs. Clapp that if it were our own, we should do nothing but stand and gaze at it. Near these were also several rows of Clapp's Favorites of about the same age, so uniformly vigorous and beautiful in their growth, with never a thought of blight, that we wish our western friends, whose orchards are devastated by blight, could have seen them. They were absolutely perfect.

The apple orchard was commenced by the late Thaddeus Clapp, the father of the present Messrs. Clapp, both of whom have sons engaged with them in fruit culture. Everything about the place shows that they have thoroughly learned "how to run an orchard."

THE TEA AS AN ORNAMENTAL SHRUB. — The Weekly Circular says that Mrs. P. M. Edmeston, of North Carolina, cultivates the tea as an ornamental shrub, and prizes it highly. It is an evergreen, growing ten feet high. The tea is classed in the same family with the Camellia, from which, botanically, it differs but slightly. The Stuartia, figured in the Journal for February last, also belongs to the same family.

HON. HORACE CAPRON took leave of the employés of the Department of Agriculture on the 13th of July, and sailed from San Francisco for Japan the 1st day of August. He is accompanied by Dr. Thomas Antisell, of Washington, as chemist, mineralogist, and geologist; Major A. G. Warfield, of Baltimore, engineer, who will examine Japan with reference to the location of railroads; and Dr. Stuart Eldridge, of Washington, secretary to the commission.

The Massachusetts Horticultural Society hold their annual exhibition, at their hall in Boston, September 19, 20, 21, and 22. Contributions will be received from all parts of the country. Although the by-laws of the society do not allow prizes to be awarded to any but members, there is a large fund from which gratuities will be given whenever there is merit in the articles exhibited. The display of fruits, flowers, and vegetables is always very fine, but there is too great sameness. The same exhibitors come forward year after year, and there is not much variation in the distribution of prizes, it not unfrequently happening that the same article will take a prize for several years in succession. It was suggested to those having the matter in charge this season to advertise, and make an effort to induce greater competition for the prizes and gratuities. The reason given for not doing so was, it cost too much. The Massachusetts Horticultural Society is wealthy, and capable of doing much more to create and extend an interest in horticulture than it is now doing. Why not amend its by-laws so as to throw open its prizes for general competition? Advertise its meetings, and let it be generally known that there is such a society, and what it is for, instead of devoting its income to the benefit of a few selected and favored individuals. *S. W.*

[The above communication has been received from a gentleman who feels some dissatisfaction with the management of the Massachusetts Horticultural Society, and we print it in the hope that others who may have the same feeling may be induced to express it as the best way of securing better management, or that any who are disposed may have an opportunity to reply. The only point which we think best to notice at present is the intimation at the close that the premiums are not justly awarded. Very likely it may have that appearance to one who does not carefully examine the awards; but if the same cultivators continue to present the best specimens for two or more successive years, surely that is not the fault of the society. Still we have no doubt that a wider advertising of the liberal premiums offered, as has been done the present season by the Pennsylvania Horticultural Society, would result in interesting many more cultivators in the exhibitions of the society, enlarging the number of competitors, and thus promoting the advancement of horticulture. — Ed.]

To prevent the Blight or Mildew from injuring Orchards. — A paragraph with this heading is going the rounds of the horticultural journals as follows: "Rub tar well into the bark of the apple trees, about four or six inches wide, round each tree, and at about one foot from the ground. This effectually prevents blight, and abundant crops are the consequence;" and on this one editor's comment is that the tar remedy is good for borers, worms, or insects around the trunk of the tree, but is not always a sure cure for blight. Now, we believe it would be an absolutely certain preventive of blight or any other disease, fully equal to cutting them down with an axe. The tar would certainly kill the tree in a year or less, and after that it would be invulnerable to blight or any insect. Those who have used tar to protect their trees from canker worms know that a strip of paper or cloth must be first placed round the trunk, on which to apply the tar. If applied directly to the bark, it is sure death to the tree.

Downing's Selected Fruits for the Garden and Market. — We have received the promised abridgment of Mr. Downing's "Fruits and Fruit Trees of America," in a neat duodecimo volume, of less than seven hundred pages, in place of the bulky octavo of more than eleven hundred. The selection of apples comprises about two hundred kinds; cherries, forty-three; foreign grapes, twenty-nine; native grapes, thirty-eight; peaches, fifty-five; pears, one hundred and forty-three; and plums, forty-nine — enough, it would seem, to afford sufficient variety to the most ardent lovers of that "spice of life." Yet of these fruits alone, to say nothing of the currants, strawberries, raspberries, etc., the number omitted from the larger work is more than three thousand. Of the new fruits added, we can only speak with precision of the pears, which we have carefully compared with the larger work, and find only three, viz., the Eastern Belle, Petite Marguerite, and Sam Brown; and we suppose that Mr. Downing has been as cautious in adding to the other fruits. Doubtless other new fruits might have been found as good as some of those included, but it must be remembered that it is much easier to exclude new ones which fail to come up to the highest standard than those which have already gained a place; and readers who think the selection might have been still further condensed, should also bear in mind that it is infinitely more difficult to make a selection than a collection. The volume is illustrated with a large additional number of outlines of fruits, which greatly increase its value, all the apples, pears, and plums, and many of the cherries and native grapes, being thus illustrated. The directions for cultivation, etc., so far as we have observed, remain unchanged.

The Grape Crop in the West is so large this season, that the price obtained for grapes when put upon the market hardly pays the cost of picking, packing, and transportation. Consignments by rail sell as low as three cents per pound. The grapes from the local vineyards near St. Louis are sold to hucksters for four and five cents per pound, and are retailed for six and seven cents.

Boston Daily Advertiser.

Peaches in Central Illinois. — The Chicago Tribune says the enormous yield of peaches is not extended over a large district, and is, to some extent, due to the new method of catching the curculio on what is called the Ransom's plan, and to the better management of the crop.

Peach Baskets. — People outside of the fruit districts of the country have nothing like a true idea of the magnitude of the trade in fruit baskets. According to the Benton Harbor Palladium, one firm in that place is turning out from 3000 to 4000 peach baskets per day. Last year one firm at the place made 300,000 baskets, and another made 60,000; at St. Joseph, 160,000 were made; at Dowagiac, 150,000; and at Colvala, 80,000 were made. Other parties also made large numbers.

A Bouquet of Apricots. — The Sacramento (Cal.) Union acknowledges the presentation of the limb of an apricot tree a little over three feet in length, containing two hundred and fifty full-grown apricots.

Hybridizing Fruits. — The Rochester Pippin. — In almost every work on the cultivation of fruits, the method of producing new varieties by hybridization is described, and cultivators are urged to attempt to raise improved kinds in that way. How much has been done in that line may be judged of by the fact that the writers who give this advice are obliged to refer for illustration of the method, at least as respects the apple and pear, to the experiments of Mr. Knight in the early part of the present century. In this country hybridizing has been practised chiefly on the strawberry, the raspberry, and the grape, but we are glad (as we believe the advice above referred to is sound) to learn from the Country Gentleman, that Mr. Jacob Moore, of Rochester, well known for his success in raising new varieties of the grape, strawberry, etc., has now raised, by cross-fertilization, a new apple of high promise, called the Rochester Pippin. Its parentage is not given, but it is described as having, on the 9th of May, the acid character which it possessed early in winter, so agreeably softened that few apples at this season of the year equal it. This sprightly quality, added to its fine form and fair appearance, will be likely to render it a desirable sort if the tree proves to be productive and a good grower. The fruit is rather large, roundish oblate, even and regular; skin greenish yellow, with a broad red cheek when exposed to the sun; stem rather slender, three fourths of an inch long, set in a wide, smooth, and even cavity; calyx in a round smooth basin; flesh yellowish white, tender, somewhat crisp, subacid, approaching acid, and slightly aromatic in flavor. Possesses something of the Newtown Pippin character, and is at least "very good" in the scale of quality.

Melon Sugar. — In Italy and Hungary, there are, it is said, several large manufactories of *melon sugar*, and it is believed that the culture of melons for this purpose could be made profitable in this country. The proportion of saccharine matter in the juice is about seven per cent., while in beets it is only one per cent. more, and the cost of expressing the juice is much greater than from the melons. The matter is worth looking into. We once made a very fine article of sirup from melon juice, but did not carry the experiment further.

Rural Carolinian.

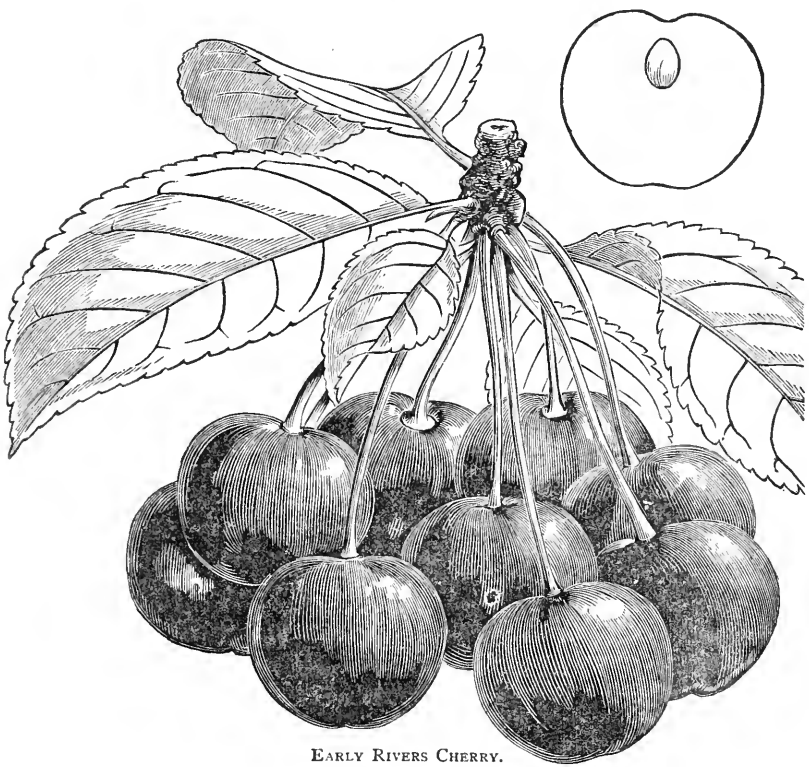
A large Vineyard. — One California grape grower has a vineyard valued at two hundred and fifty thousand dollars. It yields annually from thirty thousand dollars to thirty-five thousand dollars' worth of grapes.

Fruit-growing in Michigan. — The fruit-raiser who takes most of the premiums in western Michigan is a colored man, named Smith, who came from Canada. He first bought four acres of land for fifty cents an acre. He now owns two hundred and forty acres, and has thirty acres in fruit. He expects to sell twenty-four hundred bushels of peaches and apples this year.

A Caterpillar Raid. — Black caterpillars made their appearance in the bottoms surrounding Memphis, Tenn., early in May, in such numbers as in one instance to stop a train of cars. They destroyed vegetation to a considerable extent.

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

EARLY RIVERS CHERRY. — It is now many years since the Early Purple Guigne cherry was distributed by the Horticultural Society. I have had it more than twenty years, and always noticed with interest its earliness and excellence; but its delicate habit, it being liable to canker and gum, prevented its extensive cultivation. It is but a few years since it occurred to me to improve it by raising seedlings from it; and then again I found difficulty in procuring fruit thoroughly ripe, for the stones from unripe fruit would not vegetate. This is a com-



EARLY RIVERS CHERRY.

mon thing with early fruits; the pulpy covering ripens, but not the seeds. At last the orchard house came to my aid, and in the hot summer of 1865 some stones from very fine ripe fruit were sown. In 1866 they made plants from one to two feet high. In that summer their tops were cut off, and their buds placed in some Mahaleb stocks. In 1867 they made a fine growth of some four to five feet. In the autumn of the same year they were potted; in 1868, in the orchard house, they formed blossom buds; in 1869 Early Rivers bore its first crop; in

1870 and 1871 the tree bore abundantly, and its fruit were as large as those of its parent, a trifle later, but very rich and good, and the tree luxuriant and healthy.

There are other seedling trees of the same race. All have given fine fruit, and one of them is remarkable for its earliness. Early Rivers in 1870 ripened with its parent; in 1871 it was three or four days later. *Thomas Rivers.*

[This very excellent cherry, which we figure from a cluster sent us by Mr. Rivers, has been very appropriately named. It possesses merits of a high order, and, we feel satisfied, will become one of our most popular varieties. The fruit is produced in large clusters of ten to twelve, two to four on a very short, common peduncle. Fruit nine tenths of an inch in diameter, roundish heart-shaped, and somewhat uneven and "hammered" on the surface, slightly pitted on the apex, and with a distinct style point; suture not well defined; skin black; stalk an inch and a quarter long, rather slender, green, with a small, rather deeply-embedded disk; flesh very tender, sweet, and agreeably flavored; stone extremely small, perhaps the smallest in any cherry.]

English Journal of Horticulture.

Coleus. — A compost consisting of equal parts of peat, loam, and leaf mould will suit coleus admirably. They must be grown in the full light at all seasons of the year, and be kept rather confined at the roots. A few cuttings can be struck in the autumn for maintaining a young stock, or some of the old specimens may be kept during the winter for furnishing a supply of cuttings in the spring. They cannot be wintered satisfactorily in a green-house temperature.

Gardener's Magazine.

Basket Plants. — The easiest and most effective basket plants are easily discovered. All the trailing Tropæolums, and especially those of the *Lobbianum* race, are suitable. *Campanula garganica* makes a beautiful blue fringe on the edge of a basket. *Pilogyne suavis* and *Mikania scandens* make elegant green wreaths four or five feet long. *Thunbergia alata* is peculiar as well as elegant. There is nothing like it, either in style or color. Then there are the ivy-leaved geraniums, and the pretty variegated geranium called *Manglesii*, with petunias, verbenas, and *Lobelia erinus*, all suitable for baskets. *Floral World.*

Stock Gilliflowers. — That this is a great favorite in gardens is shown by the following statistics: At Erfurt, whence comes the main supply of German stock seeds, about 600,000 flower pots are planted annually with about 3,600,000 of these plants, for the purpose of obtaining seeds. In the year 1863, 150,000 pots were planted with 1,550,000 gilliflowers for seed, and these brought in an income of nearly 50,000 thalers. The production of the gilliflower, in sixteen varieties and over two hundred colors, established the horticultural fame of Erfurt. *Florist and Pomologist.*

The London Horticultural Society held an exhibition at Nottingham from June 27 to July 1, which was every way successful. More than two thousand five hundred pounds sterling were received for admission fees.

HUMEA ELEGANS. — Of all the graceful growing plants recommended for the embellishment of the flower garden during the summer months, none can surpass in elegance of outline or are more thoroughly useful than the one under notice. It is in every way suitable for the centre of flower beds, vases, rustic baskets, and also for growing in pots or vases, for standing in prominent positions by the side of terrace and other walks. Also, when at its best, eminently suitable for conservatory decoration, and a few large, well-grown specimens, in-

HUMEA ELEGANS.

termixed with the flowering plants with which the conservatory is usually decorated during the summer months, will produce a most unique effect.

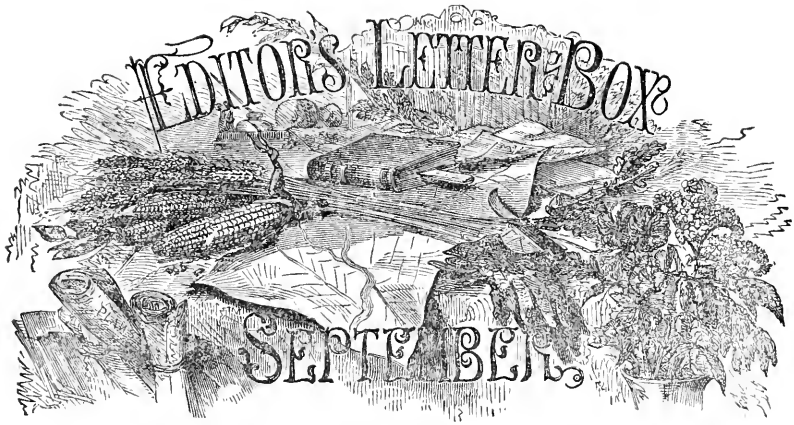
The seed should be sown some time between the second week in July and the second week in August, in seed pans filled with a mixture of light loam, sand, and leaf mould. Put the seed pans in a cold frame, or cover them with a piece of glass, and put them on the side of a wall, or wherever they will be effectually screened from the sun. A light sprinkling of water will be required occasionally, to maintain the soil in a moderately moist condition ; but it must not be saturated

with water, or it will become sour, and the seed will perish. Tilt the glass a little when a fair proportion of the young plants are visible, and in about a week afterwards remove it altogether. To prevent over-crowding, when the plants are strong enough, prick them off into pans or pots filled with light compost, and from thence pot them off separately, in three-inch pots, when about an inch in height. Keep them in a shady position until they have recovered from the effects of the shift, and then remove to an open position, and stand the pots upon a bed of coal ashes. After the first week in October, considerable risk will be run if they remain in the open air; therefore, soon after the end of September, remove them to a frame where they can have an abundance of air in mild weather, and protection from frost when required. The stock can be wintered in a green-house very successfully, but the plants must have the advantage of a light and airy position, and must not be crowded up with other plants. When they become drawn during the winter, the lower leaves usually fall off in the spring, and the plants present a somewhat unsightly appearance in consequence. One of the most essential points is to guard against their becoming pot-bound, or their suffering from drought; but they must not be over-potted or over-watered. If the pots into which they are put from the seed pans are moderately well filled with roots prior to the end of October, shift them into pots one size larger; otherwise do not re-pot them until the middle of January, and then put them into six-inch pots. As it will not be safe or convenient to plant them out before the end of May, re-pot them in April, and put the largest-sized plants into ten-inch pots, and the others into eight-inch. A few of the smallest may be put into pots six inches in diameter, and they will be found useful for mixing with the flowering plants in large rustic baskets, or for the centre of small terra cotta or stone vases.

Floral World.

Prices of Fruit. — The English Journal of Horticulture and its correspondents are discussing the Covent Garden market monopolists, and it would appear that their practices are much worse than those mentioned in our Vol. VII., p. 296. where Mr. Strong tells of the grape dealers who sold for twenty cents per pound the grapes which they had bought for ten cents per pound, thus receiving for the mere trouble of weighing them out exactly as much as the cultivator did for his months of toil. We thought this bad enough, but one of the English fruit growers received for a pound and three quarters of forced strawberries five shillings and sixpence, from which one shilling was deducted for carriage and commission. The retail price the same day was thirty-six shillings per pound, and the net price to the grower was about one fourteenth part of this! One would think that even a fruit dealer ought to be satisfied with a profit of thirteen hundred per cent. Other correspondents mention similar cases, though none quite so bad as this. No wonder such a monopoly is stigmatized as "hateful."

Rhododendrons. — The extent to which these beautiful shrubs have been planted in England may be judged from the statement of the Gardener's Magazine, that the money spent on them in the last twenty years would nearly suffice to pay off the national debt.



THE Editors of "Tilton's Journal of Horticulture" cordially invite all interested in the various branches of horticulture to send questions upon any subject on which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to inquiries in regard to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to horticulturists.

We would especially invite our friends to communicate any little items of experience for our "Notes and Gleanings," and also the results of experiments. Such items are always readable, and of general interest.

We must, however, request that no one will write to the contributors to our columns upon subjects communicated to the Magazine.

Anonymous communications cannot be noticed: we require the name and address of our correspondents as pledges of good faith.

Rejected communications will be returned when accompanied by the requisite number of stamps.

H., Sandusky, O. — We have before remarked that we cannot undertake to recommend one nurseryman over another in our pages. The best advice we can give you is to look over our "Nurserymen's and Seedsmen's List," and see who makes a specialty of what you want. Herbaceous plants are generally planted in the spring; but the fall is also a good time, especially for such as start early in spring. When planted in the fall, it is best to throw a little litter over them. Some of the phloxes do best when divided and planted as soon as they have done blooming; and the same is true of the White Lily (*Lilium candidum*) and its varieties. All plants which die down, and take their season of rest immediately after flowering, may then be transplanted.

Cider Mills, etc. — A correspondent inquires, "1st. Where can I obtain the best cider press and mill that will mash finer, and press dryer, and produce a greater quantity of cider from the least apples, and what would be the probable cost for one that would make fifteen or twenty barrels per day? 2d. Is there any process whereby peaches, pears, apples, and cherries can be put up in glass jars for future exhibitions, and retain all their beauty and color?"

We are unable to give a definite answer to the above queries, and therefore print them in full, as usual in such cases, hoping that some of our readers may be able to answer them satisfactorily. There are many patterns of cider mills offered by different makers, each one claiming that his own is the best; but as we have had no occasion to test them, we cannot say from experience which we should choose. One of the best cider-makers we know prefers the old-fashioned nuts, and another prefers the more modern grater, and both make the very best cider. We have no doubt that in the hands of an energetic, industrious man, who will use care and *cleanliness*, either will produce a satisfactory quantity of good cider, and without these qualifications neither would give satisfaction.

The only way we know of preserving fruits for exhibition is in alcohol; but they do not retain their beauty and color.

The Pear Crop at Norfolk, Va. — Through the kindness of Hon. Marshall P. Wilder, we have been favored with the following extracts from a note from one of the largest pear growers at Norfolk. Under date of July 28, he says, "This is an extraordinary year for fruit. At this date last year I had marketed about one eighth of my Bartletts. I have now marketed seven eighths of that variety. Louise Bonne of Jersey and Duchesse will follow within fifteen days. The Duchesses are taking on quite a red cheek, which I am unable to account for. The Winesap apple is as red as ordinarily the last of August. I hope I may be able to place some Duchesses on the table at Richmond, but fear that they will be too far advanced.

"I think this will prove to be the best pear section in the United States, climatic influences and marketing facilities considered. Observation teaches me that our stiffest soil only should be selected for pear culture. Clay that is so hard in time of drought as to completely resist the plough or cultivator furnishes the most vigorous growth to the pear.

"The pear crop in this section is perhaps an average one; apples scanty.

"G. F. B. L."

The Fruit Crop in Kansas. — G. C. Brackett, Esq., Lawrence, Secretary of the Kansas State Horticultural Society, writes us that the fruit crop is splendid in that section; peaches a very heavy crop; grapes very promising; apples abundant. The season has been one remarkably favorable for the horticulturist and farmer. Fine spirits seem to prevail.

W. W. H., Rutland, Meigs Co., O. — We regret that we are unable to give you the address of the originator of the Hale's Paper Shell Hickory, or any information concerning it, beyond that contained in our May number.

G. S., Manchester, Vt. — Verbenas are propagated by cuttings, which should be in such condition that they will snap on being bent. The best plants come from cuttings put in about the first of April. On a large scale they are propagated in houses built for the purpose, with broad benches, on which is placed two or three inches of sand; and in this sand the cuttings are stuck. Hot water-pipes or flues underneath the bench supply bottom heat. On a small scale they may be rooted in saucers or plates of sand, which are to be closely filled with cuttings, and placed in the parlor window, the sand being kept constantly saturated with water. As soon as rooted, they must be potted, and then must be shaded, so as to become gradually inured to the sun. When rooted in the pots, they should have plenty of air, but need not be kept very warm. The best way of keeping the black rust from them is to grow them strong and vigorous. Frequent fumigations with tobacco will keep off the aphis, or green fly, and will also help to prevent the rust. It is of little use to attempt to pot old plants or layers; it is much better to take cuttings in the fall, which, if well grown, will make plants affording plenty of cuttings for spring propagation. The verbena requires to be kept growing, and therefore cannot be preserved over winter in a cold frame or cellar. The plants must not be watered too freely, for their native habitat is on dry hills, and keeping the plants soaked with water causes disease. The plants are sold in spring for about a dollar a dozen, and when only a few dozen are wanted, they can be bought much cheaper than they can be raised.

T. H. G., St. Catherines, C. W. — The term "hill," as used in regard to strawberry growing, does not imply a mound of earth like a potato hill, but only a plant set separate from others, and having all the runners cut off, the ground being kept level. Such plants form several short stems, and throw up a large number of fruit stalks, forming what is called a "stool." There are certain varieties, like Hovey, whose habit is to throw out only a few fruit stalks, which are not adapted to this method of cultivation, but do better in beds, while varieties which "stool well" — that is, form large plants, with many fruit stalks, like Jucunda, Wilson, and Boston Pine — produce more and better fruit, and do not require resetting so often when grown in hills. See Mr. Draper's article in our Vol. VIII., p. 267.

Mrs. S. E. B., Clear Creek, Galveston Co., Texas. — Since we received your inquiries, we have heard of one or two other persons who have attempted to raise Hoyas from leaves, with precisely the same results as in your case; and we do not think there is any hope of their ever developing buds and making plants, but if you plant a leaf with a bit of wood, and a single bud at the base, you will have no difficulty in getting a plant.

S. T., Boston. — The paragraph on page 234 is not quite clear, but we understand it to mean that the secondary shoots or the main branches of the tomato plants are pruned out when they show no fruit, or the ends are pinched off when they show fruit. If this is not correct, we trust Mr. Robinson will take the trouble to set us right.

STRAWBERRY-GROWER. — What is the largest number of boxes of strawberries that you have ever known to be produced to the acre? — Six to seven thousand boxes is the largest quantity we have ever known raised on an acre, while four to five thousand is a very good crop. We do not believe the average amounts to over twenty-five hundred boxes.

M. S. W., Canterbury. — Never cut off the foliage of bulbs until it has decayed. A primary rule of bulb-culture is to grow the leaves well. We have somewhere seen an old refrain, which memory gives us thus: —

> Plant in soil light, rich, and mellow;
> Ripen leaves until they're yellow;
> Cover from the winter's frost,
> And bulbs are worth ten times their cost.

W. D. S., Westfield, Mass. — We are not acquainted with the Warren Apple. The Warren Pennock is a synonyme of Early Pennock, which, though of inferior quality, is esteemed at the West for its hardiness and productiveness; and the Warren Pippin is a synonyme of Ortley Pippin, which is an apple of fine quality. Very probably your Warren is one of these. In asking information about any fruit, you should always tell all you know as to its history, and whence received, as such facts often furnish a clew to further knowledge.

E. R. M., Sudbury. — The belief that the yucca only flowers with the full moon is sheer nonsense. The flower appears to best advantage by moonlight; but it opens in its season, moon or no moon.

L. A., North Abington, Mass. — Cocoanuts may be planted in a hot-bed, or, if you have not that convenience, wherever they will have plenty of heat and moisture.

LOVER OF ROSES, New Haven, Conn. — You are growing your roses too well. The varieties you mention as refusing to open are strong growers, and probably the strength goes to the wood. Try a poorer soil around them.

REMARKS ON THE PHLOX FAMILY.

By Joseph Breck, Boston, Mass.

The generic name *Phlox* is from a Greek word signifying *flame.* The plant so named by the ancients is supposed to be an *Agrostemma*, a very different plant. Our Phlox was not known by the ancients. It belongs to the Linnæan class *Pentandria;* order *Monogynia;* natural order *Polemoniaceæ*, from *Polemonium*, its type.

The character of the genus is a three-celled capsule, corolla salver-shaped, divided into five segments, with a conspicuous tube, more or less curved. Stigma, trifid; a deep, small, five-cleft calyx.

The genus is exclusively North American, and in the Western and Southern States is one of the most conspicuous ornaments of the prairies and woods. I believe none of the species are found in New England.

Of all the hardy perennials, there are none, perhaps, of so easy culture, or which are more pleasing than the numerous and highly ornamental family of phloxes. The beautiful varieties of the many descendants of the native species have been wonderfully perfected and increased within the last twenty-five years, and have been so transformed by the skill and care of the florist, that the botanist is at a loss to know from what species the improved sorts have originated. With a good collection of phloxes the garden need not ever be destitute of beauty from May to October.

The early or June species and varieties, if cut down immediately after blooming, will produce a second crop of flowers in August and September.

The later sorts begin to flower the middle of July, and continue to give a succession of bloom till October, as some of the varieties are earlier and others later; but the middle of August most are in perfection. It has been truly said by one writer that a collection of phloxes, properly attended to, would of themselves constitute a beautiful flower garden.

The late-flowering sorts are much to be prized on account of their lively colors of red, rose, purple, white, and variegated, and form a fine contrast with other autumnal flowers. The vernal ones, too, are acceptable, though humble in growth, and delight the eye with their brilliancy and loveliness, while the summer species and varieties are indispensable for the perfection and beauty of the garden.

While many herbaceous plants require protection in winter, none of the phloxes absolutely require it, except some of the dwarf early species, which are evergreen; the flower buds are formed in autumn, and should be slightly protected, or rather shaded. It is not so much the cold as the powerful March sun which does the damage. All that is necessary in most cases of protection for any herbaceous plants, is to prevent the action of the sun upon the plant when in a frozen state.

Most of the species delight in a moist, rich soil, but succeed tolerably well in almost any situation, provided it is not very light and dry. No plant is more easily propagated than most of the family. It is done generally by dividing the roots immediately after the bloom, or while they are in the bloom, in August, which is the proper time to have strong plants for next year's flowering; or they may be successfully divided in April, but will not flower so strong as those divided in August. If in flower, the stems should be cut down, leaving a few leaves at the bottom of the stalks. They may also be successfully propagated by cuttings in the spring, which is often done where it is desirable to obtain a stock of some of the new and rare varieties.

Thirty-five years ago I wrote an article on the Phlox family, which was published in the Horticultural Register. At that time there had not been much improvement made in this interesting flower. The species which were then described botanically included four of the spring flowering, three of the early summer, and ten of the late summer or autumn.

Class I. — The Early or May Phloxes.

Phlox subulata is often called the Moss Pink. It is a native of the pine barrens of New Jersey, and covers large patches of ground, pro-

Phlox Madame Van Houtte.

ducing a profusion of pink flowers, completely covering its yellowish-green foliage, and continues in bloom most of the month of May. There

are white and purple varieties, and white with pink eye. The flowers rise from four to six inches above the foliage. It is easily propagated from slips of the roots.

Phlox stolonifera. The plant puts forth suckers or runners near the surface of the earth, something after the manner of the strawberry. Stem erect, six inches high, bearing a few large deep-red flowers. It begins to flower about the 10th of May, and continues to bloom during the month.

Phlox nivalis. This is a beautiful species, similar to *P. subulata*, but rather more delicate. The foliage is of a deep shining green color, bristly, and completely covered with its snowy white flowers, marked with orange in the centre, which are produced on the end of the stem, in bunches of from three to five in each cluster, three or four inches high. I have lost this very pretty species, and have not seen it in any garden of late years. It requires a slight protection, and was probably lost for the want of it. From the middle of May to June.

Phlox divaricata. This beautiful species flowers the last of May; very large, pale-blue flowers on lax or decumbent stems. There are varieties with white and dark-blue flowers. It is not extensively cultivated.

Class II. — Early Summer Phloxes.

This class embraces many beautiful varieties. Formerly *P. suaveolens* and *P. maculata* were all that were generally known. The flowers are arranged on oblong spikes, and continue in bloom from the first of June till July, and if the stems are cut down when the flowers begin to fade, will continue in bloom the most of the season. *P. maculata* is an old inhabitant of the flower garden, and was frequently known under the name of "Flora's bouquet." It receives its specific name from its spotted stems. *P. suaveolens* has pure white flowers, and makes a fine contrast with the last, which has purplish red flowers.

Some of the improved and newer sorts are *Countess of Home*, with large white flowers with conspicuous brilliant red centre; *Roi Leopold*, striped, pink and white; *Madame Deboulet*, pink lighted with white. *Insignis*, lilac shaded with purple; *Beppo*, dark red, small flowers; *Rival*, white. Other varieties may be found in catalogues.

Class III. — Summer and Autumn Phloxes.

This is the most extensive and highly-prized division of the family, commencing their flowering in July, and continuing to give a succession of flowers until October, according to the different varieties. The

improved flowers are nearly round, having but little appearance of any division of the segments of the corolla, and are produced in dense panicles or corymbs. Their height varies from a foot and a half to five feet, according to the variety or quality of the soil. They produce seed abundantly, which, when the capsule opens, as it does with a spring, is scattered in every direction, from which many fine seedlings are found every year.

For many beautiful sorts the reader is referred to the catalogues, which are published annually by nursery-men and florists.

I will name but a few of the finer sorts, which are *Cross of St. Louis*, lilac and white striped; *Madame Van Houtte*, pure white, crimson eye (extra); *Edward About*, rich rose, crimson eye; *President Morell*, rich carmine; *Triomphe de Twickle*, purple striped with white; *Snow-bank*, pure white; *Miss Duncan*, white, rose eye, large dense spikes, scarlish; *Madame Marseux*, white, with purple eye; *Madame d'Arnt*, blush, with crimson eye; *Hersine*, fine, large panicle, rosy lac, lighted with white at the base of petals with dark eye — a very tall variety; *Emilie*, brilliant carmine, dark crimson centre, flattish corymbs, superb. Many other fine varieties might be named, worthy of a place among the phloxes; but I will close this lengthy article with a description of a few seedlings of my own growth.

No. 15. A fine late seedling, with large, pure white, perfect flowers, with deep red eye, commencing blooming the last of August.

No. 1. Dark purplish crimson, with darker shades; one of the most showy of the darker varieties; large, full spikes; begins to flower the last of July.

No. 7. A large, well-formed, pure white flower; begins to flower the middle of July. The clusters were cut off the last of that month for bouquets, and now, the 30th of August, a second crop, of numerous but smaller clusters, covers the plant. I have named it "Purity."

This is all I have to say about phloxes; it is probably the last I shall write on this flower, as a life of seventy-eight years does not give much promise of future articles on a subject which I have already considered at least four or five different times for different periodicals.

ORCHID CULTURE. — V.

By John G. Barker, Cambridge, Mass.

Potting. — The proper season for potting is the earlier part of the year, or when the plants begin to grow. After taking the plant to re-pot, care must be taken not to break the roots; frequently they will be found adhering so closely to the sides of the pot that they will not leave without breaking. In cases of this kind they can be separated from the pot by thrusting down the inside a thin-bladed knife, which, if they are not too numerous, will separate them very readily; but in some cases the pot will have to be broken, and it must be done gently, so as not to break the roots, and then remove as much as you can of the broken pot; some will still be left with the roots fastened to the pieces. Before the plant is re-potted, shake off as much of the old soil as you can, and then examine the roots to see that there are no insects, and cut away all the dead roots to the living part, then re-pot carefully, the pot being quite clean both inside and out, and being in size proportionate to that of the plant, bearing in mind that orchids require more room than plants generally do; then put in the drainage, the large pieces at the bottom, the second size next, and the third next, until the pot is about half filled; then place in a sufficient quantity of the right compost, so that the plant will be elevated above the rim of the pot; then work the compost firmly among the roots, and if the plant is not firm, thrust in some sticks among the roots, and tie the pseudo bulbs to them neatly; then cover up the compost neatly with some chopped sphagnum; set the pot on the floor, and with the coarsest rose on the syringe force the water out all over it; this will settle the compost, and give it a neat, clean appearance; then take the plant back to its place again; and so proceed until all that require potting are done.

Terrestrial Species. — These require something of a different mode of treatment. They are the earth-growing stove orchids, and are found growing in rich, constantly decomposing vegetable soil; and to succeed with them we must imitate this soil as far as possible. The *Bletia Tankervilliæ*, referred to in the May number of the Journal, is one of this kind, and is grown in the following compost: fibry loam and leaf-mould, the latter not too much decayed, and dried cow-dung, all well mixed with small pieces of charcoal; the difference between the epiphytal and terrestrial orchids being that the first thrive better if

elevated above the rim of the pot, the latter being planted below the rim as plants generally are. The spring is the proper season for re-potting these also.

Basketing. — Having already given hints in article No. 3 in regard to this part of the work, I will only add that the remarks on potting are equally applicable in this case.

Lists of Selected Species. — Orchids to be grown in pots in the following compost: fibry peat, sphagnum moss chopped fine and passed through a sieve, the dust being thrown away, and the whole mixed with small pieces of potsherds and charcoal. *Aerides affine*, *A. maculosum*, *A. odoratum*, *A. suavissimam*, *Angræcum caudatum*, *Anguloa Clowesii*, *Brassia caudata*, *B. hirsutissima*, *Catasetum citrinum*, *C. Russelianum*, *C. tridentatum*, *Cattleya Aclandiæ*, *C. bicolor*, *C. crispa*, *C. elegans*, *C. guttata*, *C. labiata*, *C. Mossiæ*, *C. Skinneri*, *Cœlogyne cristata*, *C. speciosa*, *Cymbidium giganteum*, *Cyrtochilum maculatum*, *C. stellatum*, *Dendrobium aggregatum*, *D. calceolus*, *D. Dalhousianum*, *D. fimbriatum*, *D. formosum*, *D. nobile*, *D. Paxtonii*, *D. Wallichianum*, *Epidendrum aurantiacum*, *Huntleya violacea*, *Lælia anceps*, *L. cinnabarina*, *L. Perrinii*, *Miltonia candida*, *M. spectabilis*, *Odontoglossum grande*, *O. Pescatorei*, *O. pulchellum*, *Oncidium Cavendishii*, *O. flexuosum*, *O. Papilio*, *O. sphacelatum majus*, *Saccolabium Blumei*, *S. guttatum*, *Schomburgkia crispa*, *S. tibicina*, *Vanda cærulea*, *V. insignis*.

Orchids to be grown in baskets in the same compost as described for pots. *Acineta Humboldtii*, *Barkeria elegans*, *Brassavola glauca*, *Coryanthes macrantha*, *Dendrobium cambridgeanum*, *D. devonianum*, *D. Pierardii*, *D. pulchellum*, *Gongora atropurpurea*, *G. nigrita*, *G. speciosa*, *Stanhopea aurea*, *S. eburnea*, *S. insignis*, *S. tigrina*, *S. Wardii*.

Orchids to be grown on blocks of wood with a little moss tied over the roots. *Broughtonia sanguinea*, *Cattleya citrina*, *C. superba*, *Lælia acuminata*, *Oncidium crispum*, *O. pulchellum*, *Sophronitis cernua*, *S. violacea*.

Terrestrial species, that require the following compost: fibry loam, fibrous peat, leaf mould, and cow-dung, in equal parts, to which should be given a liberal addition of silver sand. *Bletia acutipetala*, *B. Shepherdii*, *B. Tankervillie*, *Cypripedium barbatum*, *C. caudatum*, *C. insigne*, *C. hirsutissimum*, *C. Lowii*, *Peristeria alata*, *Phaius albus*, *P. maculatus*, *Zygopetalum Mackayi*, *Z. maxillare*.

The above list of selected species might be very much enlarged, but care has been taken to have a short and select list of the best species

only, that any one desiring to commence the cultivation of orchids may select from without being disappointed.

[The above closes Mr. Barker's series of articles on Orchid Culture, for which we feel sure he will receive the hearty thanks of the daily increasing number of orchid growers; and no one who likes *practical* articles can fail to be pleased with them, for all the directions given are derived from his daily practice, the results of which we have often seen and admired. To those who wish to get the best book on the subject we would recommend Williams's Orchid Grower's Manual, as the most practical work published; or if there is any point on which any of our readers would like fuller information, if they will mention it to us, Mr. Barker will be happy to give such information through our pages. — Ed.]

SPECIALTIES FOR NURSERYMEN. — TIMBER PLANTING AT THE WEST.

By Suel Foster, Muscatine, Iowa.

In the Journal for June, 1870, page 354, you say, "such establishments as R. Douglas & Son's at Waukegan, Illinois, who grow annually from three to five millions of evergreens." In August, 1868, I was at their nursery, and saw six acres covered with seed-beds of evergreens, all shaded and protected from the scorching sun. The seed-beds were four feet wide, rounded up a very little, with an eighteen-inch walk between. The seeds were sown broadcast, and lightly raked in. The little trees were up at that time sufficiently to look green like grass. Mr. Douglas had counted average pieces of beds, from which he made a careful calculation amounting to about one million to the acre. This was three years ago. We are all on tiptoe for planting our treeless prairies. The Douglases could not fill their orders with six millions; so they enlarged their planting for 1866. The *ad interim* committee of the Illinois State Horticultural Society visited the Douglas nursery in 1869, and report that they found there *fifteen millions* of evergreens and European larch.

At the meeting of our Iowa Eastern Horticultural Society at Iowa City, June 22 and 23, 1870, while we had the subject of tree-planting before us, Mr. Douglas was asked to tell us how many evergreens and

European larch he had. He estimated those two or three years old, transplanted, at 1,000,000; those not transplanted, in the seed-bed, one and two years old, at 20,000,000. Those who know Mr. Douglas know that he would rather under-estimate than over-estimate.

So we see that, however progressive Tilton's Journal may be in this instance, it is hardly up with some of our go-ahead western men. I am happy to be able to state this item — this extensive propagation of these evergreens and European larch, than which there are no varieties of trees so valuable for beauty, wind-breaks, timber, and climatic influence. The time is coming when it will be considered bad economy to depend on natural growth of trees for wood and timber. How beautiful to contemplate this rich, undulating country, each farm with its belts of timber and groves, planted to suit its convenience and comfort! It is a vast work, but it is only the pleasure of a holiday time compared with the laborious task of clearing up a farm in the forest. I would rather plant and raise an acre of timber than clear one off.

[Since the above notes were written we have had the pleasure of seeing with our own eyes the extensive nurseries of Messrs. Douglas & Son. Certainly we have never seen anything more unique and interesting in the nursery line, and we are quite willing to believe that the number of seedlings is fully equal to that stated by our correspondent, as indeed we should if he had made the number much larger. When we see a bed four feet wide and hundreds of feet long, as thickly filled with young seedlings of the Austrian or some other pine as a lawn is with spears of grass, and bed after bed equally thick, we can only estimate them by myriads. Among the most interesting parts of the establishment are the houses for storing the young plants through the winter, thus affording the opportunity of sorting and preparing them for filling orders, for this purpose thousands upon thousands of arbor-vitæs, white pines, Austrian pines, Norway spruces, European larches, and the beautiful Lawson's cypress, being piled up as regularly and neatly as the books in a library.

We are glad to know that these seedlings meet with a ready sale, and we wish that ten nurseries of the same capacity were in operation, and all finding a demand for their plants. There is room and need for all. — Ed.]

LEAVES FROM MY GARDEN JOURNAL.

By Priscilla Primrose.

February 10. What *shall* I do with that hyacinth to make it stand up? It topples over its glass on the slightest provocation. Such a beauty as it is, too — or would be if it did not, like some other misguided beauties, insist on practising that ridiculous Grecian bend!

I have another that was put in water a month before this one, but which has not yet managed to do much but fill its glass with the most wonderful roots.

I cut them off about an inch below the base of the bulb the other day, and am waiting events with some solicitude. I have read somewhere that roots are of no account to a hyacinth; indeed, it would get along much better without them; so I could not resist the temptation of trying the experiment.

The flower buds are just formed.

March 7. My blue hyacinth is in full bloom and high beauty. This is the one on which I have been experimenting. After the roots were cut off, the development of the flower buds was very rapid. The spike is thick and stands quite erect, and is hung full of deep-blue bells. The leaves are broad and healthy, and turn in, and form a beautiful green cup to hold the lovely blossoms.

I have been much annoyed by my hyacinths toppling over their glasses. After trying several plans to keep them in place, I find that moss, packed firmly around the bulb, in the cup of the vase, is the most effective. One that was very tall I tied up to a knitting-needle, stuck into the heart of the bulb; it is out of bloom now, but still growing, so the needle does not appear to have injured it.

I have been much amused at the various comments and general horror expressed at my savage treatment of my blue hyacinth. Everybody said that it would die; that it was impossible for a plant to exist without roots. I thought myself it would, but I was pretty sure it would not bloom unless something was done, and I never had a more beautiful plant. I only cut the roots once, and four new ones have started out, and one is within an inch of the bottom of the vase.

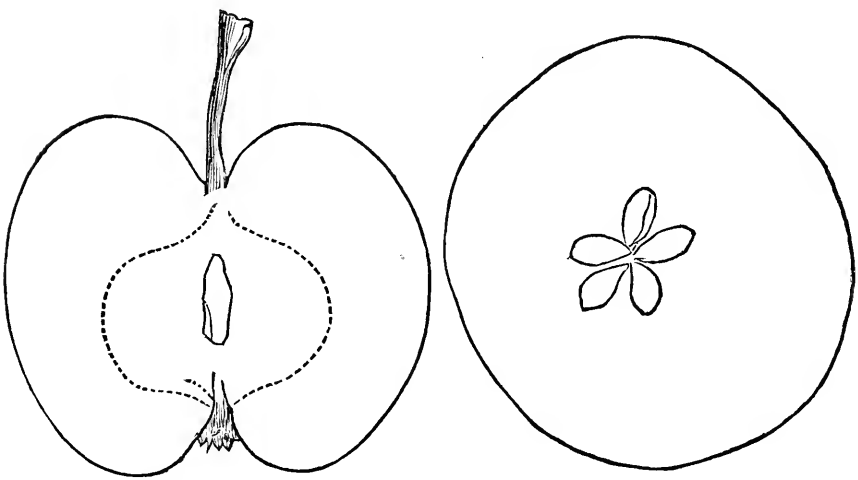
APPLES OF 1871.

By W. C. Flagg, Alton, Ill.

Here in Southern Illinois we have had an unusually, perhaps unprecedentedly, early ripening of apples, as well as other early fruits. The earliest shipment of apples ever made by me previous to this year was June 26, 1858. This year the apples were equally ripe by June 20, or nearly a week ahead of the earliest season I have on record, and at least two weeks earlier than our average crops.

I say this in qualification of the periods of ripening affixed to the two or three varieties of apples to which I ask to call the reader's attention.

Potter's Early. — This variety, received from Evans & Co., York, Pa., I have fruited this year for the first time, and do not find described

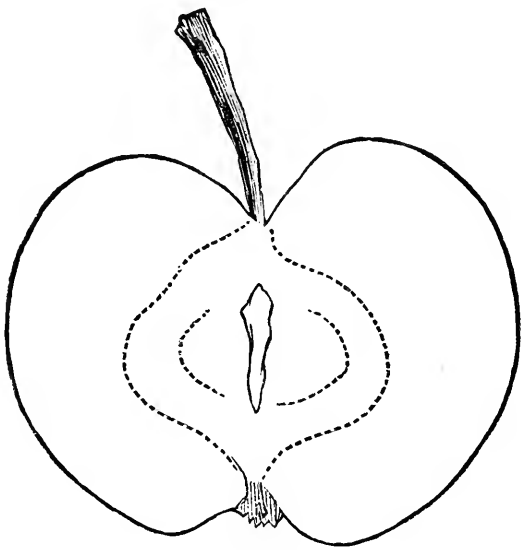


Potter's Early.

in any of the books I have consulted, nor even in Evans's catalogue, so that I cannot judge of its identity. It was ripe or over-ripe as early as July 3, or about with Early Strawberry, Sine-qua-non, etc. It is

faintly striped on a green ground, is small to medium in size, sub-acid and "very good" in quality.

Bevan's Favorite, from the same source, I have also fruited this year for the first time. It is a peculiar and beautiful fruit; but as it is described in the books, I need not go into details. It is brilliantly colored,

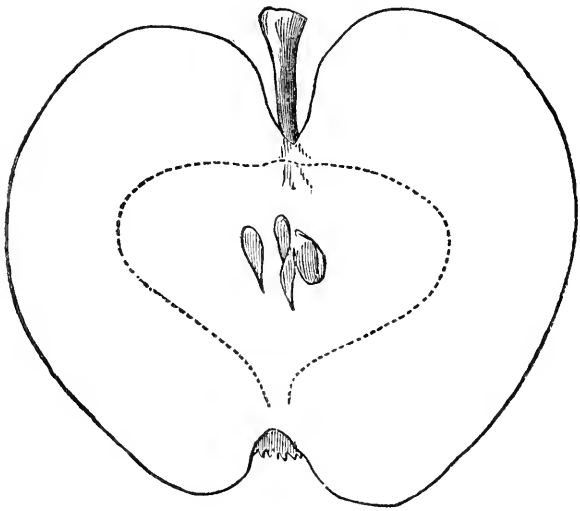


Bevan's Favorite.

very good in quality, and seems to be a promising variety for planting here. In its shape and coloring it suggests a relationship to the Summer Queen. It was fully ripe July 19, or near the season of that variety.

Bohannon or *Bohanon*, from the same source, is a very beautiful and very good apple, ripening this year about July 20th, but variable in different specimens. A comparison with the outline given by Dr. Warder suggests that this may be a different apple from the one described by him, although it appears to agree with that of Downing and other authorities pretty well. The outline here given is not sufficiently oblate to be representative, but in other respects is a pretty fair sample of the variety. It does not resemble the Maiden's Blush, as the specimens described by Dr. Warder; it is not regular, but in most other respects answers his description. It corresponds very well with the descriptions of Downing and of Hooper who denies its resemblance to the Maiden's

Blush. Upon the whole, I presume this variety has varied in different localities, rather than that there has been a spurious variety disseminated.



BOHANNAN.

DWARF PEACH, PLUM, AND CHERRY TREES.

THE peach tree is so easily grown in most parts of the country as a standard on its own roots that few attempts to dwarf it have been made. Yet for small gardens the dwarf form possesses sufficient advantages to compensate for the greater trouble of growing it. For this purpose it is budded on plum stocks of different kinds. In England, where plum stocks are almost exclusively used, the kinds adopted are the Muscle, so called from the shape of the fruit, the White Pear and the Brussels, different varieties requiring different stocks. The second of these should only be used when very small dwarfs are wanted, as the bud is apt to grow much larger than the stock. We think that the exemption from the borer would alone repay the extra trouble and expense of plum stocks.

The pruning which we should advise would differ from that commonly pursued, mainly in substituting summer pinching of the ends of the shoots for the spring "shortening in" commonly practised. By pinching off the end of each shoot carefully the wood and buds will be better

ripened, and consequently better adapted to resist the cold of winter. We would not do this so early as to cause any of the buds left to start into growth the same season, but as early as we could without producing this effect. This would promote the formation of fruit buds, and if in spring the shoots were found too long or too full of fruit buds we would then shorten in as far as necessary to reduce them to the proper length or proper number of buds. Of course the head of the tree should be kept even and well-balanced, and every strong shoot which threatens to destroy this balance should be early checked. If the trees showed a disposition to excessive growth, root-pruning once in two or three years will be the best check, but it should only be performed when the tree is in a dormant state. In pruning the peach, it must be remembered that the fruit is borne only on the young wood of the last year, and consequently the object should be to obtain as much of this and as little of old wood as possible.

For dwarf plums there is probably no better stock than our native Canada plum (*Prunus Americana*), but as the graft or bud usually outgrows the stock, it should be worked at the surface of the ground, in order not to present an unsightly appearance. Such short-jointed, slow-growing kinds as the Green Gage (the best of all plums), are easily grown as dwarfs on any stock, by simply allowing them to branch low; indeed, it may be said that they are naturally of a dwarfish habit. Besides stocks of small growth, the means used for dwarfing the plum are summer pinching and root pruning, the later operation to be performed in October or November. Varieties which, like the Smith's Orleans, will make shoots three or four feet in length, will also require to be shortened early in spring, or they will soon present a naked appearance. When it is desired to give them the utmost check, they may be shortened just after they have begun their annual growth.

The dwarf form of the plum will be found a great advantage in fighting the curculio. A curculio catcher, or sheet to lay on the ground, would be rather unwieldy if made large enough to catch all that falls from a full-grown standard tree.

Dwarf cherry trees are generally made by budding on the Mahaleb Stock. Still smaller dwarfs can be produced on Morello stocks, but the heart and bigarreau cherries do not take readily on the Morello. The best form for the hearts and bigarreaus is the pyramidal, and the general treatment should be similar to that recommended in our August number for the pear. Of these classes of cherries, it would be better to avoid the most vigorous growers, and select kinds like the Black Eagle, which do not naturally make so large a growth. Even with this precaution

they will not improbably require an occasional root pruning. The duke and morello classes are more easily managed, and naturally take the form of bushes, and it is therefore best to grow them as such. They should be headed down to the point where it is desired that they should branch, and four or five of the best branches produced should be selected and the others rubbed off. Any which grow stronger than the others may be pinched, and the next spring all may be shortened to produce secondary branches, and so on until the tree is formed, keeping it open so as to admit light and air. The Late Duke is particularly eligible for growing in this form, and is moreover one of the finest of cherries. The Black Tartarian, though belonging to the class of heart cherries, is, from its peculiar growth, which is of the form known among orchardists as "besom-headed," or broom-shaped, is better grown as a bush than as a pyramid. With every species and variety the natural habit must be taken into account, and the best results will be produced when the tree is pruned in conformity with it. No two varieties of any fruit are exactly alike in growth, and the young cultivator must not expect that he can cast his Downtons in the same mould with his Black Eagles. Nor are we vain enough to suppose that in these, and our previous articles on dwarf trees, we have taught how to form perfect dwarfs of any kind at the first attempt. Our aim has been rather to state as concisely as possible the principles through which this result may ultimately be reached by the careful and observant cultivator, and we trust that all owners of small gardens will at least find in them some hints to aid in keeping their trees within the limits adapted to their grounds, and under better control.

APPLE AND PEACH TREE BORERS.

By M. B. Bateham, Painesville, Ohio.

The apple tree borer referred to by J. M. B., of Quasqueton, Iowa, in the May number of the Journal, is evidently not the insect commonly described under that name in the books and periodicals, — the *Saperda bivittata*, — but a much more troublesome and more common pest, especially in the West and South-west. It is the larva of a beetle of the *Buprestis* family, the *Chrysobothris femorata*.* It differs from the

* See articles in *Practical Entomologist*, vol. ii., and figures and descriptions by Mr. Ruthven, of Pennsylvania, in Patent Office Report for 1861.

Saperda in the more flattened shape of the larva, and its larger head, so that it is often called the "hammer-headed borer," and also in its habit of extending its ravages higher up the trunk, and even on the larger branches of the tree, as mentioned by J. M. B. On this account the methods of preventing its ravages usually recommended for the *Saperda*, applied only to the base of the tree, are of but little avail for the *Chrysobothris*, and the remedy found so effective by J. M. B., I am convinced would prove just as much so, if the most troublesome part of it, covering the ground with ashes and lime, was entirely omitted, using only the alkaline wash on the trunks and large limbs of the trees, or on the trunks only, where the insects are not very bad. I think, too, it would be an improvement in his remedy to apply the wash about the first of June, as the eggs are mostly deposited the latter part of May, and repeat it, if thought necessary, a month or so later. Washing in this way with soft soap, thinned with an equal quantity of water, has often been used with good success. Lye, of wood ashes or potash, of moderate strength, I have found equally efficient both for the apple and peach borers.

A better remedy still for both these troublesome insects, I have been using for the past two years, especially on my orchard of *three thousand* bearing peach trees, in a locality where borers are very abundant. It is washing the base of the trees with *carbolic soap-suds*. I use at the rate of a pound of the soap of the kind called "Carbolic Plant Protector," dissolved in six or eight gallons of water — a little weaker for young trees. Five pounds of the soap in a barrel of water is sufficient for a thousand trees. The cost of the soap is only two dollars, and an active lad can apply the liquid, with a pail and brush, to a thousand trees in two days, if the orchard is not in a weedy condition, in which case the weeds should first be removed from around the base of the trees with a hoe.

I apply this wash in July, after the eggs are deposited, and while the young grubs, if hatched, are only in the surface of the bark, and are at once killed by the liquid, which is quite penetrating, and sure death to eggs, worms, aphides, scale-bugs, &c., and not at all injurious to the trees, unless applied to the foliage or tender shoots, for which purpose its strength should be only about one fourth the above. I am experimenting with the article for a variety of other purposes, of which I will report some day.

A NEW SPECIES OF ERYTHRONIUM (Dog-Tooth Violet, or Adder's Tongue), is described in the American Naturalist, for July, by Professor Asa Gray, and named by him *Erythronium propullans*. It is of much interest from the peculiar manner in which the bulb propagates. It was discovered at Faribault, Minn., by Mrs. Mary E. Hedges, the teacher of botany in St. Mary's School, who also noticed the peculiarity above mentioned. "The flower is much smaller than that of any other known species, being barely half an inch long; and its color a bright pink or rose, like that of the European *E. Dens Canis*, reflects the meaning of the generic name, viz., red, which is lost to us in our two familiar Adder Tongues, one with yellow, the other with white blossoms. The most singular peculiarity of the new species is found in the way in which the bulb propagates. In *E. Dens Canis* new bulbs are produced directly from the side of the old one, on which they are sessile, so that the plant, as it multiplies, forms close clumps. In our *E. Americanum*, long and slender offshoots, or subterranean runners, proceed from the base of the parent bulb, and develop the new bulb at their distant apex. Our western *E. albidum* does not differ in this respect. In the new species an offshoot springs from the ascending slender stem, or subterranean sheathed portion of the scape (which is commonly five or six inches long), remote from the parent bulb, usually about midway between it and the bases, or apparent insertion of the pair of leaves. This lateral offshoot grows downward, sometimes lengthening, as in the foregoing species, sometimes remaining short, and its apex dilates into a new bulb."

GRAPES IN TEXAS. — It has been noticed that grapes approaching in foliage the European, do best in Texas.

Waste of Manure. — It is to the reckless, and therefore wicked, waste of fertilizing material that the attention of all cultivators of the soil should be particularly directed. As a single element in the computation of this loss, so possible to avoid, and for that reason the more inexcusable, consider the fact that a barrel of flour is estimated in the annual subsistence of each and every individual in the community. All then that enters into the formation of two hundred thousand bushels of wheat, saving the two per cent. that remains in the human body, the sole and exhausting product of twenty thousand acres is yearly extracted from the prairies of the West by the population of this single city, to swell the clam-banks of Narragansett Bay. Devastation of the essential constituents of the different varieties of fruits advances with a similar unthrift. Do we need to inquire why our long-established orchards refuse to yield their increase, excepting only seasons like the present, in which the fierce stimulus of a torrid heat compelled a growth that threatens final and utter exhaustion?

This whole subject, compared with which wars and rumors of wars are dwarfed into insignificance; this subject, which involves in its ultimate relations no less consequences than the future subsistence of entire nations, whereas other matters but affect their prosperity or independence, has latterly forced itself upon the attention of the people and Parliament of Great Britain. It is felt that without a speedy change the land must continue to deteriorate; its produce to lessen with its impoverishments. Accordingly commissions are formed, investigations set on foot, experiments prosecuted. Note the basis on which they proceed!

"It is unquestionable that so well fed an animal as man ought to be good farm stock. Compared with the sheep, he is better fed, and he takes less out of his food. Take any given human population; its average weight is a pretty constant quantity, and it increases not more than two per cent. annually. The total weight of the population of England increases not more than two per cent.; that is all that man saves out of his year's food in this country. On the other hand, the total weight of a flock of sheep will increase from forty to sixty per cent. in the same time. There is a smaller waste of poorer food in the case of sheep than in the case of man; and yet the former is the best farm stock we have for maintaining the fertility of land, and the latter is, in this respect, virtually good for nothing. What can be the explanation of this anomaly? The whole excrement of the sheep-fold is deposited on the land which it is to benefit, while the whole waste from our houses finds its way into the river." *Et sic passim.* *Report of Edward W. Lincoln, Sec'y. Worcester Hort. Soc.*

Bees and Raspberries. — An idea has been advanced that bees are injurious to a crop of raspberries; but a correspondent of the Practical Farmer is of a very different opinion. He says, "I have a quarter of an acre in raspberries adjoining my apiary of two hundred swarms of Italian bees, and I am very sure the bees were a great advantage to the berries. Every blossom produced a berry. I sold between thirty and forty gallons of raspberries off the quarter acre the second and third year after it was planted. I value the raspberry highly for its honey and fruit, and think of planting ten acres next year."

Stocks for Orange Trees. — A writer in "The South Land" says, that the best method of procuring stocks for orange trees, so as to secure a permanent and healthy orange grove, is to select the most plump and perfect seeds of the Wild or Sour Orange, from fully mature and ripe fruit; to plant these seeds in drills, two or three feet apart, in suitably rich and rather moist soil, dropping them two or three inches apart in the drill, and when the young seedlings attain the height of five or six inches, having the whole crop carefully "lifted" (in damp weather), the taproot clipped off with sharp pruning-shears or a knife, and the plants skilfully replanted six inches apart, in three-foot drills, and in fresh soil, expressly prepared for the purpose.

Such stocks are much superior to those raised from seed of the sweet or cultivated orange, the latter being feebler in constitution, and therefore more liable to disease, and to the attacks of all the insect enemies of the *Citrus* tribe. They are also much better than the seedlings growing wild, which are wrenched out of the rich, damp, shady hummocks in which they grow, without lateral roots, transported in open boats, exposed to the hot sun, and then crowded into a small hole on some dry, sandy bluff or upland.

We have seen just such trees planted in just such places, and, from the observation we have been able to make, we have no doubt that plants raised from selected seed, as above described, possess all the superiority imputed to them, though we should suppose that the wild seedlings, if taken up and transported with care, and well planted in good soil, thoroughly prepared and afterwards mulched, they would give satisfactory results. In selecting, care should be taken not to choose too large plants. Stocks of an inch in diameter would be preferable to those of two or three inches, such as we have seen selected.

Exhaustion of the Soil, in the language of Practice, has a relative meaning, and signifies a reduction of producing power below the point of remuneration. A soil is said to be exhausted when the cost of cropping is more than the crops are worth. In this sense the idea is very indefinite, since a soil may refuse to grow one crop, and yet may give good returns of another, and because a crop that remunerates in the vicinity of active demand for it may be worthless at a little distance, on account of the difficulties of transportation. The speedy and absolute exhaustion of a soil once fertile, that has been so much discussed by speculative writers, is found in their writings only, and does not exist in agriculture. A soil may be cropped below the point of remuneration, but the sterility thus induced is of a kind that easily yields to rest or other meliorating agencies, and is far from resembling in its permanence that which depends upon original poverty of constitution. "*How Crops Feed*," *by Professor S. W. Johnson.*

How to cure the Sting of a Bee. — When stung by a bee, extract the stinger immediately, to keep the poison from spreading, and there will be no danger of the flesh swelling as big as a mound. The tincture of lobelia is very good to allay the pain, and prevent the flesh from swelling when stung by bees. Coal oil, ammonia, and cold water are also good preventives. *Apiculturist.*

The Peach Trade of New York. — The New York Semi-Weekly Times has an article, in which it is said, "The entire system of handling peaches is arranged so admirably to favor the pecuniary interest of middlemen who sell the fruit, that in some instances the consignees take the fruit, sell it, pocket most of the money, return the producer his baskets and crates, and a bill for freight and commission over and above the aggregate sum declared to have been received for the entire cargo. Such an occurrence is by no means uncommon, as middlemen have everything their own way. They all operate as a unit to get the fruit at the lowest possible figure, and to make as much profit on the repeated sales of the same fruit as possible, before the supplies are purchased by consumers. Hence the money made in the peach traffic is snapped up by a few operators, who usually appropriate only a few hours per day at their livelihood, realizing during the brief space of time enormous profits." It is further stated that the fruit arrives at Jersey City at two to three o'clock in the morning, when the car is opened by the consignee, who seldom dwells long in effecting sales. The buyers are not very numerous, and seldom disposed to bid against each other. The sales are soon made to these dealers, who hurry away the fruit to New York or Brooklyn, and sell it at an advance of two, three, or four hundred per cent. In many instances large dealers will have a confederate, who is really a member of their firm, though not known to the public as such. To this confederate they sell the fruit consigned to them at half or less of its real value, receiving their share of the profits of from three to four hundred per cent. The result is that fruit, for which the buyer gets forty cents per basket, with commissions deducted from that, is sold to consumers at two dollars or more per basket, and orders from surrounding towns are filled with fruit that cost forty cents per basket in Jersey City, and four to five dollars per crate is charged for it. The practical remedy, it is said, is for producers to employ one of their number to sell their fruit. Most peaches are now sold from small places that are rented at about one dollar to one dollar and a half per day. The sales are closed out each day, so there is no stock on hand to find storage for. By thus renting a cheap stand in New York, and handling their own fruit, a large part of the profits that now go to middlemen might be saved. "Then a producer having a cargo of fine fruit, could calculate with satisfactory certainty about how much he would realize for his crop before shipping it." Now, it is further said, with "the present tricky and underhand manner of selling on commission, middlemen keep the prices constantly fluctuating, when the rates might be, with fair and straightforward management, as uniform, and trade as steady, as the prices of coffee and sugar. Retail prices continue quite uniform from day to day, and there is no reason why wholesale rates should be reported at forty cents per basket to-day and eighty cents to-morrow, only that heavy operators realize greater profits, in consequence of the fluctuations."

Jute. — Plants of jute grew last year in three months ten feet high on the banks of the Lower Mississippi, and this too with little or no cultivation. They fully matured, and produced abundance of seed, thus showing that jute can be grown throughout all the sugar-growing portions of this valley.

Illustrated Journal of Agriculture.

INFLUENCE OF THE GRAFT ON THE STOCK. — Since the paragraph with this heading in our July number (page 215) was written, Mr. Guerineau, the gardener of the Cambridge Botanic Garden, informs us that though the graft of *Abutilon Thompsoni* has been cut off, the shoot below still continues to produce variegated leaves.

CANKER WORMS. — It is time in October to commence to guard against this destructive insect. Wherever it is feared, a box should be placed around the tree with a trough of oil on the edge, or else a strip of sheathing paper round the trunk, to be kept sticky with printing ink. The trough of oil is most effective, the ink is cheapest.

THE CURRANT WORM. — I have had entire success in protecting my currants from this modern pest, by sprinkling the bushes with common *wood ashes*. The application must be made, of course, as often as the insects reappear, as in cases where hellebore, air-slaked lime, or any other substance is used for the same purpose. The ashes ought to be sprinkled on when the bushes are wet, otherwise the desired result *may* not be obtained. *G. F.*

WORCESTER, July, 1871.

A NEW WAY OF MAKING WINE AND CIDER. — The centrifugal machine is now applied with peculiar success in some districts of France to the extraction of the juice of the grapes and apples for wine and cider-making. It is found to get out considerably more juice, and to be much more rapid in its action. It will do well with grapes, for example, in two hours, more work than is accomplished by the press in seventeen hours, with this advantage, that all the juice is of the same quality, while with the press it is found that only the first runnings will make wine of the very first quality, the long contact of the rest with the skins and stalks rendering it fit only for wines of inferior quality. In the case of cider the use of this machine seems equally advantagous, much less juice being left in the marc, and the extraction being effected with great rapidity. The amount of force required to give a machine of the necessary size a thousand turns a minute does not exceed that of a three-horse engine. *Germantown Telegraph.*

FENCES. — The fences of the United States have cost more than the houses, cities included — more than ships, boats, and vessels, of every description. The aggregate cost is put down at $1,296,000,000, while the renewals at the end of every ten years foot up at $129,000,000, besides the cost of repairs. In France, Germany, and Holland, farmers hold their lands in common, with only narrow paths between. In Missouri and California, a reform in the fence laws is strenuously urged; and it is our opinion that the time is not far off when radical changes will take place throughout this country in regard to the management of fences. *Illustrated Journal of Agriculture.*

UNDERDRAINING. — One important advantage of the underdrain is, that it is at work when the top of the ground is frozen, when, of course, a surface or open drain is inactive; thus making the subsoil so dry and porous that when the frost comes out the water drops through at once and leaves the ground dry.

Massachusetts Ploughman.

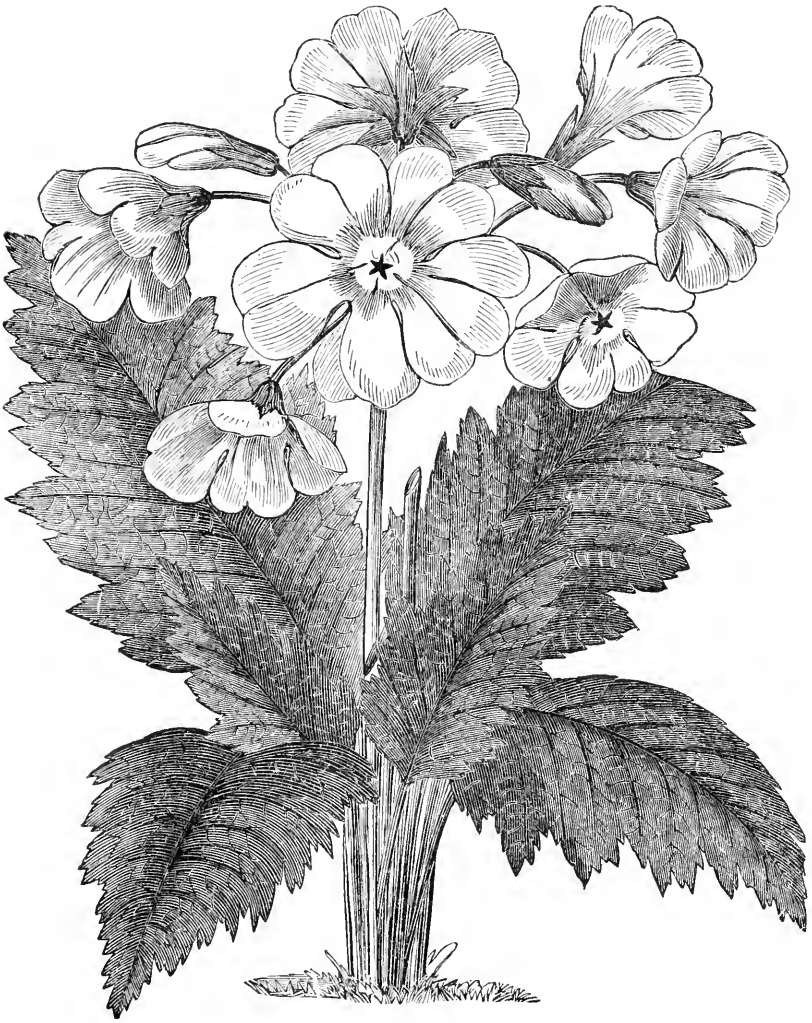
Root Lice on Apple Trees. — To destroy these insects, the Prairie Farmer advises to boil cheap tobacco or stems in water, and after the strength has been extracted, to skim out the stems and leaves, and to each bucketful of the water add a quart of soap. When well mixed and cooled, it is fit for use. Fill a barrel with the mixture, and plunge the roots of the trees in it; and when one lot is taken out for planting, another may be put in. In this way, with but little loss of time, the trees will be immersed long enough to kill all the lice there may be on the roots.

Peach Trees in Florida. — Charles Beecher, in *Old and New*, gives a select list of Florida-grown peaches, with the time of ripening: Hale's Early, June 10–15; Early Tillotson, Yellow St. John's, June 15–20; Canary, June 30; Amelia, July 1–10; Bergen's Yellow, July 10; Grosse Mignonne, July 15; Late Admirable, July 20; Oldmixon Free, July 15–30; Great Eastern, July 20; Pucelle de Malines, July 10; Late Rareripe, August 1; La Grange, August 15–30; Gaylord, August 15; Owen's Seedling, August 1–15; Osceola, September 1; Picquet's Late, September 1–15; Fruitland Seedling, September 5–20; President Church, September 15; Lady Parham, October 1; Baldwin's Late, October 10; Julia, October 30.

The Yellows in the Peach. — This destructive disease is said to be so prevalent in Ohio, Michigan, and Illinois, that the greatest care is necessary in planting either the pits or trees to secure those free from disease. The subject has been discussed at a meeting of the Fruit Grower's Association of St. Joseph's, Mich., and a committee was appointed to consider what action was desirable to prevent its spread and get rid of it where it has already appeared. We do not doubt that such measures will be adopted as will be effectual, but it must be remembered that only the most radical treatment will avail; half-way measures are of no use whatever. The absolute and entire destruction of every tree wholly or partly affected is the only effectual preventive.

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

Varieties of Primula Cortusoides. — The beautiful primula represented in the engraving is one of the most attractive of a very interesting group.



Primula cortusoides amœna.

The type of the group, *P. cortusoides*, is an old favorite in the few gardens wherein hardy herbaceous plants are properly cared for; but the varieties

to which we now more particularly direct attention are of quite recent introduction, and are as yet comparatively little known.

The typical plant, *Primula cortusoides*, forms a tuft consisting of heart-shaped, bluntly-toothed leaves, of a bright green color, agreeably adorned with compact umbels of purplish rose-colored flowers, in the months of May and June. It is always a neat plant; when in flower it is extremely pretty, and should one meet with the rare sight of a few very large clumps of it, the grandeur of the plant will not be soon forgotten.

If planted in the common border and left to take care of itself, this plant is likely enough to die; and yet, in some places, to plant it anywhere and leave it alone would be the most satisfactory mode of cultivating it. We have for many years enjoyed its abundant flowering on a ledge of a rockery facing the north; the soil deep and gritty, and thoroughly well drained. From April to August the tufts — indeed the whole of this part of the rockery — are heavily watered once a week. This system suits a large proportion of the best Alpines in cultivation. The north aspect is peculiarly well adapted for its requirements; for, as a native of Siberia, exposure to the full sun would debilitate the constitution of the plant: in fact, the main difficulty about growing Arctic and Alpine plants is, that our climate is too warm for them, and they perish through growing too fast.

The variety here figured represents a group of plants of more robust habits than the type, and producing flowers far more showy, both in size and color. It is the finest of the series introduced, and a native of Japan, obtained for our gardens by Messrs. Veitch & Son, in the year 1864. From the same firm there have been sent out several other varieties, all of which, in their leading characteristics, cluster around *P. c. amœna*, so that we must regard that variety, and not the species, as the proper type of them. They are all fine plants, thoroughly hardy, yet but rarely prospering in the common open border. The best of all places for them is the frames; they are, indeed, the finest frame plants we possess, for neglect will rarely kill them, and proper care will bring them to a condition of extraordinary beauty. To grow them well the soil should be a rich sandy loam, the pots well drained, the plants at all times preserved from any approach to drought, and during summer to have abundance of water. The whole stock should be repotted annually, no matter how well the plants are doing; the proper time for this operation is the month of July, when they are comparatively at rest. The following list includes all the varieties known: —

Amœna. — A robust-habited plant, flowering freely. Flowers, rich rosy carmine; one of the finest of the group.

Intermedia. — This is well named for those who know the specific form. The flowers are most abundantly produced, the color lilac carmine. A very desirable plant.

Alba. — A fine plant, with large, handsome, pure white flowers, which droop as if blown aside by the wind. The brilliant green of its leaves and the snowy purity of its flowers constitute this a striking plant, notwithstanding the drooping of its flowers.

Striata viridis. — A pretty starry flower, white with obscure green stripes. A

good companion plant to *Intermedia.* It will indicate the exact botanical relations of this variety, and also exemplify the elegancies of botanical nomenclature, if we add that its proper (or say legal) name is *Primula cortusoides v. amœna, s. v. alba, s. s. v. striata viridis.* A rose by any other name would smell as sweet, and if this primula bore a shorter name it would be none the less pretty.

Grandiflora is apocryphal. When a plant of *amœna* is extra well grown it becomes "grandiflora," and *vice versa*, if grandiflora is only middling well-grown it becomes "amœna." To put the case in plain English, Grandiflora is a nursery name for a nonentity.

Oculata is only a good state of Amœna, showing a distinct white eye. To repeat the solemn truth just uttered, Oculata is a nursery name for a nonentity.

Lilacina is an exquisitely beautiful plant. The flowers are large, quite flat, the edges fringed or lacerated, the color palest blush, overlaid with delicate veins of lilac and palest purplish rose. This and Amœna are the best of the group, but the others we have recommended are quite needful to any cultivator who can find amusement in the cultivation of first-class frame and Alpine plants. *S. H., in Floral World.*

Structure of Leaves. — The succulent material of the leaf consists of a great number of small bodies, called cells. Each forms a little closed cavity. The pressure of these upon one another gives the same effect as the little compartments of an India rubber door-mat. Each compartment is at first filled with a morsel of jelly-like substance, called protoplasm. It is on this protoplasm that vitality depends. The wall of each cell is dead material, and only confines and encloses the protoplasm. In some of the more obscure plants the protoplasm escapes under some circumstances from the cell, and exhibits spontaneous movements; but in the cell of the leaf it can only move in little currents over the cell walls. Portions of the protoplasm in the cells of the leaf are finally detatched in little granules, and become colored under the action of light, by the conversion of a part into chlorophyll, or leaf-green. A proper supply of warmth, varying in amount in different plants, is necessary for the formation of this substance. The presence of iron has been found to be another necessary circumstance; this is remarkable, because it is also an essential ingredient in the coloring matter of blood. Leaf-green is a most important substance in the plant economy.

The interior of the leaf is not quite solid; the cells are more loosely arranged, forming passages communicating with the outside through little mouth-like openings on the under side of the leaf. Air finds its way into these, and with it the carbonic acid, which is thrown into the air as the result of every kind of combustion and decay. In the granules of the chlorophyll-containing cells, the carbon is fixed, combined with the elements of water, and the oxygen is returned. The sun's light and heat supply the force required to tear the carbonic acid asunder. In this way starch is formed. This is insoluble; but in darkness, during the night, it becomes dissolved in the cell, and is then transferred to other parts of the plant, where it is stored up as a reserve for the plant's future use, again becoming insoluble. Protoplasm differs from substances

like starch, which are quite inert, in containing nitrogen. This is an element very difficult to bring into combination, and very restive when combined. This restiveness seems to have something to do with the proneness to change so characteristic of protoplasm. It is noticeable that nitrogen is a component in most explosive compounds, and also of many medicinal and poisonous vegetable principles. *Gardener's Chronicle.*

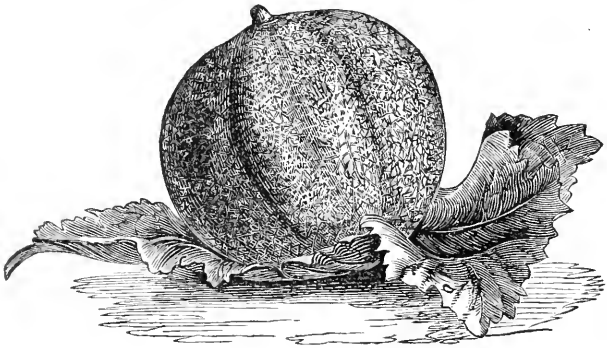
Fruit in London. — The following remarks on the fruit supply in London are from the Pall Mall Gazette. How different the case in this country, where a fruit stand is found on every corner! We believe, however, that there are fewer nectarines and apricots seen here, as well as in England, than formerly, — of course excepting California.

"Perhaps one of the chief reasons why there is so much intemperance in this country is to be found in the difficulty of obtaining any good fruit at a reasonable price. How small a percentage of the inhabitants of London have ever tasted a peach for instance! Grapes are a luxury only within reach of the wealthy, and except sour apples and oranges the poorer classes have no fruit which they may call their own. For some reason or other fruit appears to become more scarce each year in this country. Nectarines and apricots, once common, are now rarely seen, and in a few years will probably disappear altogether. The same may be said of hautboy strawberries, which a quarter of a century ago were as plentiful as gooseberries. It would be an inestimable boon to all dwellers in cities if large depots of fresh fruit and vegetables, to be procured at reasonable prices, were to take the place of the dirty little green-grocers' shops where stale cabbages and unripe mouldy fruit are retailed at exhorbitant charges; nor should this be impossible, for there are few trades more profitable than market gardening: but the truth is that great improvements have yet to be effected in the packing of fruit and vegetables, and the cooking of the latter. When fruit arrives, even at the green-grocers's shop, it is too often in a damaged and "unfresh" condition, and vegetables, which equally suffer in transit, are only purchased as luxuries, for the simple reason that, apart from their cost, few people know how to cook them in such a manner that they may be used as substitutes for animal food. It is to be hoped that one of these days some method will be discovered by which fruit and vegetables may be packed and transmitted with as little damage as Australian beef and mutton, and the market for these articles be placed on a more satisfactory footing than it rests upon at present."

A Monster Cutting. — A large weeping willow tree having broken off some feet from the ground, where the circumference was two feet and eight inches, the jagged end of the stem was cut off, so as to form a smooth base to the cutting, and a few small branches were trimmed off, leaving a clear stem eight feet in length. This was planted in a hole, four feet and a half deep, near the margin of a lake, the bottom of the hole being a foot or eighteen inches below the water level, and the soil rammed very firmly around it. This was in November, 1865, and the experiment proved a complete success, the tree being in a healthy state, and making a vigorous growth the past summer.

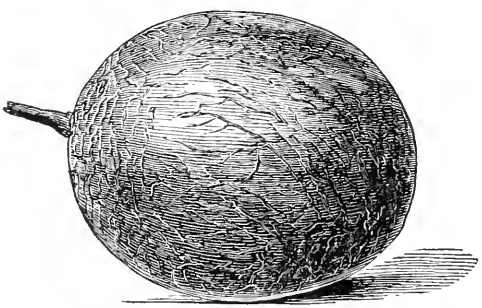
Gardener's Magazine.

New Melons. — Four sorts of melons are quite sufficient for an ordinary sized garden. Probably the two best green-fleshed varieties in cultivation are



Cox's Golden Gem.

Cox's Golden Gem and Gilbert's Improved Victory of Bath. The former was raised by Mr. Cox, gardener to Earl Beauchamp, Madresfield Court, and the latter by Mr. Gilbert, gardener to the Marquis of Exeter, Burghley. Both are robust in constitution, free setters, and the fruit, which is of a large size, is very



Gilbert's Improved Victory of Bath.

handsome in appearance, and most excellent in flavor. There are several other good sorts, but with the above no other will be required. The best scarlet-fleshed varieties are Malvern Hall and Turner's Scarlet Gem. As a rule, green-fleshed melons have the finest flavor.

George Gray, in Floral World.

Moss on Trees. — A writer in the English Journal of Horticulture expresses the opinion that salt water is more efficacious than quick lime in killing moss on trees. He has noticed that trees on the coast, especially the west coast, though stunted, are perfectly free from moss. Has any one made similar observations in this country?

Propagating Geraniums from Leaves. — Possessing a plant of the ivy-leaved geranium L'Elegante, I was desirous of increasing the stock. I accordingly struck a number of cuttings. Amongst these I placed in the cutting-pot, as an experiment, a single leaf, with no portion of the main stalk or a bud attached. This leaf has struck, and has now become a good-sized plant. But the foliage is totally different from that of the parent plant, which has leaves of a glossy green color, with a narrow white margin. In the plant raised from the leaf, there is no edging to the leaves, and they are entirely green, with the exception of a dark bronze blotch in the centre of the oldest leaves. The plant has not yet flowered, and I shall be curious to see whether the blossom will differ from that of the original plant. *Floral World.*

[A lady correspondent of the Journal, in Texas, mentions another instance of propagation of geraniums by the leaves. She says, "In February, as I was putting down some cuttings of geraniums, I stripped off some well-matured leaves of the Nutmeg-scented geranium, and dropped them on the damp ground of the green-house. Several days after I noticed they had not withered; so I took them up and planted them in a box of potting soil. In a few weeks little plants sprang up from the petioles, which are now growing finely."]

Bleeding of Grape Vines. — A correspondent of the Gardener's Chronicle recommends as preferable to the method of placing a potato on the freshly-cut end, to stop bleeding in grape vines, to use flexible collodion, which has been found so thorough a styptic for wounds of the human body. Two dressings were given with the end of a feather, thoroughly covering the wound twice in the course of a few minutes, the third or final coat being put on about half an hour afterwards, when the cut was completely sealed up, and in the course of a few minutes became quite hard, so that there was not the least sign of any bleeding. In the course of ten days the vines grew away strongly and vigorously, and have since continued to do so. Some choice pelargoniums were also cut down and dressed twice; this was quite sufficient to heal the wound, and in the course of three or four days the eyes were starting again, showing great vigor. It was found equally efficient with *Aphelandra Leopoldii*, *Euphorbia jacquiniæflora*, and *Luculia gratissima*. In the treatment of the *Euphorbia*, and all the tribe of plants that bleed at the same rapid rate, it was found necessary to have a small piece of sponge to wipe off the milky juice, so as to get the collodion to adhere, and they require to be gone over as many times as the vines.

New Application of Potatoes. — In the Intellectual Observer there is a paragraph relating to a new application of potatoes for knife-handles and similar purposes. The potatoes are said to be first peeled and macerated for about thirty-six hours in water, to which three per cent. of soda is added, and after maceration they are boiled in a solution containing nineteen per cent. soda, when a substance is produced resembling stag's-horn, and which may be used for the purpose above mentioned. It seems also that turnips may be used with similar results, and if an artificial coral is required, carrots may be substituted. Specimens, we are told, were exhibited at the recent Paris Exhibition.

THE NIGHT-BLOOMING CEREUS. — Of this, *Cereus grandiflorus*, there is one large old plant here, which I have heard several gardeners and gentlemen say is the largest of its kind in England. It flowers here every year, and in 1869 there were one hundred and thirty-one flowers opened from May 29 to June 28, and as many as sixty-seven open in one night. This year it has just finished blooming, the greatest number open at one time being thirty-one, when we had the plant photographed by the magnesium light. The size of the plant is as follows: five and a half feet high, nine feet across, and a foot and a half through. It is trained on a strong iron trellis, and every year's fresh growth is laid on the top, and closely tied in on the sides.

R. Maitland, Pendyffryn Gardens, Conway.

[This is the finest specimen bloomed in this country of which we have any information. We have more than once been taken to see, by lantern light, one or two blooms on small specimens. The finest we ever saw was trained over the trellised arcade, admitting from the Ganges to the house of the curator of the Botanic Gardens at Calcutta. Its hundreds of blooms, and the fire-flies darting among them, are vividly remembered.] *English Journal of Horticulture.*

DENDROBIUM CHRYSOTIS. — This beautiful plant was flowered for the first time in England, by Messrs. Brooke & Co., of Manchester, in September last. It is a beautiful stove epiphyte, somewhat resembling *D. fimbriatum oculatum* (the so-called *D. Paxtoni* of gardens), but differing in the much more deeply-cut fringe of the lip, in having on the disk of the lip two dark blotches instead of one, and more particularly in bearing its flowers on the yet leafy stems, the flowers of *D. fimbriatum* appearing on stems which have become ripened and leafless. It was imported from Assam.

The stems are slender, rod-like, three to four feet long, bearing thin, oblong-ovate sessile leaves, while the large showy flowers form drooping spikes, six to nine inches long, and are of a bright orange-yellow color, with two dark spots on the disk of the lip. The sepals and petals are ligulate, narrower than in *D. fimbriatum*, while the lip is more rhomboid, edged with a beautiful deep moss-like fringe. When exhibited in September last at South Kensington, it obtained a first-class certificate. Its cultivation is similar to that of other Dendrobes, and it requires plenty of heat. *Florist and Pomologist.*

THE VIRTUE OF THE SUNFLOWER. — Mr. Martin, in a paper presented by him to the *Société Therapeutique de France*, affirms that the common sunflower, extensively cultivated, has the effect of neutralizing the unwholesome vapors which are so fatal to health and life in marshy districts. The Dutch, who live only by diking and draining their low lands, and are therefore good authority, pronounce sunflower culture a specific for intermittent fever, the scourge of Holland. They assert that it has disappeared from every district where the experiment has been tried. It is not yet known whether this is the result of its rapid growth producing oxygen, or whether it emits ozone and destroys those germs, animal and vegetable, which produce that miasma which brings fever in its train. *Medical Record.*

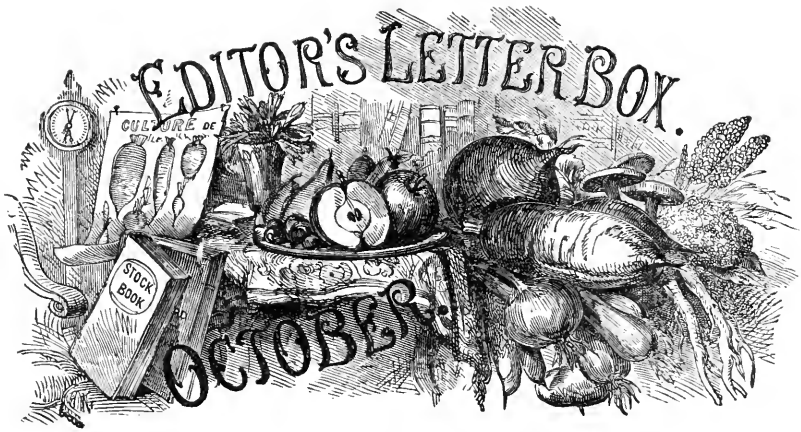
A Select List of Potatoes. — The Floral World gives "a *selection* of potatoes of the finest quality in their several classes," comprising no less than *thirty-two* varieties. They are classified as Early Kidneys, Early Rounds, Second Early Kidneys, Second Early Rounds, Main Crop Kidneys, Main Crop Rounds, and Market Potatoes. We notice among them, of American sorts, the Early Goodrich, Early Rose, and Bresee's Prolific.

Moss. — One of the necessaries of decorative gardening is green moss. Fresh moss is not always easily obtainable; and even when it can be had, it has this objection for in-door use, that it contains innumerable eggs of insects, and thus brings disagreeable visitors into the apartments. Prepared moss has generally a dull bluish green color, not at all pleasing. The following recipe for preparing moss, with slight alteration of appearance, is copied from a French chemical journal: Dissolve one grain of nitric acid and about fifteen grains of indigo in two quarts of water; tie the moss up in small parcels; throw these into the solution while boiling, and leave them in for a minute; afterwards dry them in the open air, and the moss will last for an almost indefinite time without alteration. *Florist and Pomologist.*

New Grape. — It is the most easy thing in the world to raise new varieties of grapes, but it is not easy to make advances on the best varieties in cultivation; and amongst all the newest of the new, we can only select one respecting which we can speak in terms of unequivocal praise. Our choice falls upon Mr. Pearson's Ferdinand de Lesseps, in which the best characters of the American and European grapes are combined, the result being a new and exquisite flavor, combined with a most powerful and refreshing perfume. It is described in the Oracle as the result of a cross between the American Strawberry Grape and the Royal Muscadine. "The fruit is small, both in bunch and berry, the color a fine deep amber, the flesh highly perfumed, and of the most luscious flavor. The vine grows freely and bears freely, and is so nearly hardy that it will probably thrive on walls and in ground vineries." For pot culture and early forcing, this will, we cannot doubt, prove to be most desirable, both for its earliness and peculiar and desirable qualities. *Gardener's Magazine.*

Hardy White Dutch Cabbage Lettuce. — This capital little compact lettuce is one of the most useful varieties in cultivation. For winter work, it is very hardy, can be planted thickly, and has no superfluous leaves. It is a first-rate variety to put out under frames or handlights, to keep up a supply of salad through severe weather. I wish especially to commend it for its extraordinary capacity to withstand drought, as in the driest soil it will heart in nicely, and remain longer before running to seed than any other variety. Its texture is fine and crisp to eat, and the flavor is sweet and good. Its only drawback is that it is small; but that is easily got over by planting an extra quantity.

A. D., in Gardener's Chronicle.



THE Editors of "Tilton's Journal of Horticulture" cordially invite all interested in the various branches of horticulture to send questions upon any subject on which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to inquiries in regard to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to horticulturists.

We would especially invite our friends to communicate any little items of experience for our "Notes and Gleanings," and also the results of experiments. Such items are always readable, and of general interest.

We must, however, request that no one will write to the contributors to our columns upon subjects communicated to the Magazine.

Anonymous communications cannot be noticed: we require the name and address of our correspondents as pledges of good faith.

Rejected communications will be returned when accompanied by the requisite number of stamps.

WALTHAM. — It is true that, as you say, large trees have done well when the whole top has been cut off and grafted at once, but still we cannot advise it. We seldom wholly change the top of a large tree in less than three years, and frequently it takes longer before *every* limb is grafted that should be, and even then the shock to the tree is quite as great as it will bear. But if you are determined to try the experiment you will check its growth less by grafting early than if you wait until it has come into leaf or nearly so.

P. H. C., Clinton, Ky. The grapes came to hand, but not being quite ripe when picked, and being in bad order when they reached us, it was difficult to

judge of their quality. By the way, how is it that the specimens of grapes sent to us almost always arrive in a condition far inferior to that of the grapes sent an equal distance to market? So far as we could judge the only recommendation of the variety is its hardiness, and it would not for a moment be thought of where better kinds succeed. It may however be of value for producing kinds as hardy as itself and of better quality, and we recommend you to try the experiment, crossing it with the best native and foreign varieties.

BARREN.—The reason your young pear trees do not give any fruit is that they are growing so vigorously. The functions of growth and reproduction (the primary object of the fruit of trees is to perpetuate the species by the seed which it encloses) are entirely distinct, and to some extent antagonistic. If you want your trees to bear you must cease feeding them so highly, and if that is not enough give them a root pruning.

ALEC. The Red Pine (*Pinus resinosa*) is wrongly called Norway pine, and the Latin name is not appropriate, as the wood is not particularly resinous. It is a beautiful tree on the lawn, and though difficult to transplant is worth the trouble. It should have plenty of room to develope itself on all sides without crowding. The name of Red Pine, or *Pinus rubra*, is from the reddish color of the bark.

AMY.—The yellows in the peach is not caused by an insect, though very likely the peach borer may have a share in producing it by affecting the general health of the tree; but we do not believe that, unaccompanied by any other cause it would produce the yellows. This disease appears to be an enfeebled state of the tree caused by poor soils, unsuitable climates, and unfavorable influences generally, and so long continued that the disease becomes fixed or "constitutional." The only remedy is to dig up the tree and burn it; it is utterly useless to head it down, or prune it in any way, in the hope of saving it. It will only infect others to keep it standing, and young trees must not be planted in the same soil, as they will certainly be affected.

IDEM. So many instances are on record of nectarines being produced from peach stones that there can be no doubt of the fact. We have at this moment a tree which was raised from a peach stone, and which has borne nectarines last year and this. Peaches vary greatly in the quantity of down on their skins, some being covered almost like flannel, and others having scarcely any down; and it is no strange thing if, among other variations, one should occasionally be produced without any down at all. Peaches have also been raised from nectarines, and both peaches and nectarines have been borne on different branches of the same tree. The gooseberry would seem to afford a similar instance, as we suppose the smooth and hispid varieties are produced indiscriminately from each other, though we have no certain knowledge on this point.

NEW AND RARE PLANTS.

By Robert Buist, Philadelphia, Pa.

I most cheerfully comply with your request to give your readers a short description of a few of the many new things shown at the exhibition of the Pennsylvania Horticultural Society. Your experienced eye detected the charms of those beautiful and unique new hardy retinosporas (evergreens), fifteen species all told, the superb ferns, and the gorgeous foliaged and variegated plants of every color and feature, which are all well worthy of a few notes on their habit and culture.

Cyrtodeira is a new tribe from the gold regions of South America. They require a moist atmosphere when in a growing state, with rough, sandy, vegetable soil, to keep them beautiful and fresh, and propagate every spring from the tips of the shoots. They are capital basket plants for shaded situations.

C. metallica has bright scarlet flowers, with thick oval foliage, of an olive green, with a central pink band on the midrib, diverging through its hairy foliage.

C. chontalensis. The flowers are white, an inch in diameter, shaded with lilac, and appear in profusion for several months. The foliage is purple on the under side, and on the upper side a shaded green, sparkling with a golden metallic lustre — a very charming plant.

Begonias are refreshingly new, and all blooming in early autumn and winter with a profusion to please the most fastidious; all of the easiest possible culture in a temperature of forty degrees to sixty degrees in winter. They grow and flower most freely when renewed from cuttings every spring.

B. boliviensis, a new feature, with large, pendent flowers, of a rich coral color, and in great abundance.

B. Sedeni, similar to the former, with flowers of a rich crimson color.

B. glaucophylla scandens, a climbing species and a first-rate basket plant. Its long, pendent shoots are just the article for window culture.

B. Weltoniensis, the plant you saw two feet high and two feet wide, of six months' growth, was a complete bouquet from the pot to the tip, of a delicate pink color.

Sphærogyne latifolia, — Keep off such names from us common-place scribblers, — is a magnificent hot-house shrub from South America. Its stem is covered with short, cinnamon-colored hairs, and furnished with opposite leaves fourteen inches wide and sixteen inches long, three-ribbed, with many small ribs diverging to its margin, having the appearance of *Cyanophyllum magnificum*, and its growth and culture are similar to that plant.

LILIUM EXCELSUM.

By John C. Hovey, Cambridge, Mass.

This species, though not new, is one of the finest in cultivation. It is also found catalogued under the name of *Lilium testaceum*.

Nothing is positively known regarding its introduction to gardens, though it is believed to be one of the many fine plants introduced into Europe from Japan, by Dr. Siebold, about 1840. It first flowered in England in 1842, and was exhibited the following season at the June show of the Royal Horticultural Society.

The stem grows from four to five feet, and sometimes, under high cultivation, even six feet in height, with scattered lanceolate leaves. The flowers are pendulous, in whorls of from three to nine each, nearly flat, of a beautiful salmon buff, with bright scarlet anthers, thus making a very fine contrast.

It flowers the last of July, is very sweet-scented, and, like most of the Japan lilies, is perfectly hardy, and will grow in any soil not too wet or sandy.

The most common way of propagating this lily is by offsets, which

LILIUM EXCELSUM.

can be taken from the old bulb in September or October; it can also be increased with much facility by planting the scales of which the bulbs are composed, in pots or boxes of very sandy soil; by this mode each scale will, in time, if properly cultivated, make flowering roots.

HOW TO MAKE A FERN CASE.

The use of glass cases for growing ferns and ornamental foliage plants is yearly becoming more general. We shall attempt in this article to give a few directions by which they may be made at less expense than has heretofore been thought possible, in the hope to induce those who have never yet enjoyed the beauties of a fern case, to undertake the pleasant labor of making and stocking one.

For the case itself, all that is necessary is five panes of glass, of such shape and size as to form a case of agreeable proportions. Three panes, twelve by eighteen inches each, one for the top and the other two for the sides, with two panes, each twelve inches square, for the ends, will make an excellent shape and size, though we think a little deeper, say thirteen or fourteen inches, is still better. Of course it can be made as large as wished, retaining the same proportions. A perfect cube would not look badly, but the oblong is better. Then as to the base, if you are not handy with carpenters' tools yourself, the cabinet-maker will furnish you one at small expense. The first thing is a piece of inch board for the bottom, which should be two or three inches larger all around than the case is wanted. The base should be about three inches high, and may be plain or moulded, as is most convenient, and nothing is more agreeable to the eye than an ogee moulding, like an inverted cornice, with a bead above. There should be a groove or a rabbet in the inside of the upper part of the base to receive the glass. The base looks well made of black walnut, but may be made of any other wood. Sometimes the case is made with the glass reaching to the bottom, but then the panes must be larger and no rabbet will be needed.

The glass is to be fastened together by pasting over the angles silk galloon, about half an inch wide. The lower edges, which go into the base, should be set in putty. Then bind the edges of the top and the sides and ends with the same galloon, and the case is done. The paste used must be powdered gum tragacanth, dissolved in water; the apothecary from whom you purchase it will tell you how much water to put to it. The cover is simply laid on top of the case; of course it will not be air tight, but it will be tight enough to answer every purpose.

But we cannot grow our plants directly in the bottom of the case, and therefore must have a pan, which is best made of zinc, say three inches deep, so as to have the top about even with the top of the base, and just

wide and long enough to go into the case. Have a hole made in the middle of each end near the upper edge, so as to hook in a bent wire to lift the pan out of the case, else you may find it difficult to get it out when you want to.

Now we are ready to select the plants. What shall they be? Our advice is to go into the woods and select the prettiest ferns and other plants that you can find, and you cannot do better if you search the whole world over. First of all are the pretty native Maiden Hair ferns, as pretty as the *Adiantum Farleyense*, which costs from one to three guineas a root. Then the Bunch of Grapes fern, in its different forms, especially the beautiful *dissectum*, are worthy of a place anywhere. The *Camptosorus*, or Walking-leaf fern, so-called, because the long narrow point of the leaf roots at the end, and gives rise to a new plant, ready to take another step in advance, is a curious and interesting species. Do not omit, if you can possibly get it, the Rattlesnake Plantain, or Adder's Tongue as it is sometimes called (*Goodyera pubescens*), with its dark-green foliage veined with white, one of the most beautiful of all variegated-leaved plants, and found growing abundantly in the woods of New England. It is no better or worse for having been figured in the Flore des Serres; but perhaps some of our readers who have looked on it as a common plant, of little beauty, may prize it more for knowing that M. Van Houtte has illustrated it in that magnificent work, along with the choicest glories of the vegetable kingdom. The different native *Lycopodiums*, — *L. dendroideum*, commonly called Ground Pine, and used so largely by florists for giving verdure to their winter bouquets, as well as the less common *L. lucidulum*, — are desirable; and if you can get from a florist or from a friend any of the green-house species, they will give elegance to your collection. Pine or hemlock, or arbor vitæ seedlings, from one to two years old, make a pretty variety, and the Lawson's Cypress, if attainable, is still more beautiful. If you want trailing vines, the *Lysimachia*, or Moneywort, and the Coliseum Ivy (*Linaria*), are eligible, the latter much the more delicate of the two. We should not advise many flowering plants, but the Hepatica, or Liverwort, will be at home among the plants we have mentioned, and a few bulbs of Dog's Tooth Violet, called, also, Adder's Tongue (*Erythronium*), should be secured, not so much for the flowers as for the leaves, whose green is strikingly blotched with brown. It will be worth while to try that most beautiful of all the wild spring flowers, the Mayflower, Trailing Arbutus, or Ground Laurel (*Epigæa repens*). A single plant of each of the kinds named will pretty well fill up a case of the size we have supposed; but the spaces between the plants may

be carpeted with the prettiest mosses you can find, and enlivened with the red fruit of the Partridge Berry, or Squaw Berry (*Mitchella*), and the Checkerberry, or Ivory (*Gaultheria*), the former desirable also for its neat foliage and pretty, white, twin blossoms, and the latter for its glossy leaves. Both have long, creeping, under-ground stems, from which the roots proceed.

Now for planting these in the case. Fill the pan half full of pieces of charcoal, as large as you can put in without getting it too full, and mix in some smaller pieces, but no fine coal or dust. The plants and moss may be placed directly on the charcoal, without any more soil than adheres to them in digging up; but if you like better to have them growing in soil, bring home some from the woods, such as you find them growing in naturally. When all are planted, make the soil *moist*, but not wet, and it will need no more care for a long time, except to remove any insects, snails, etc., which may be animated by the warmth. Do not let it get dry; but very likely it will not need any water for two or three months. A northern window is better than one where the sun will strike directly on it. Put the tallest plants in the centre of the case so as to give the whole a pyramidal outline.

If you are not sufficiently acquainted with plants to identify the common ones we have recommended, we advise you to go into the woods and select whatever seems most beautiful and desirable for your purpose, choosing those with graceful, light foliage in preference to dark, heavy leaves. We have mentioned only such as may be obtained without money and without price; but, of course, if you can get any choice green-house ferns, we would not omit them; or, if you can get only a bit of a frond, with spores, of any such ones, it will be of much interest to scatter the spores on the earth in the case, and watch their vegetation. It is not generally known how easily and abundantly ferns are produced from these minute spores; we have seen in the moist air of a hot-house the mossy outside of an inverted flower-pot covered with little ferns just where the spores had fallen and lodged.

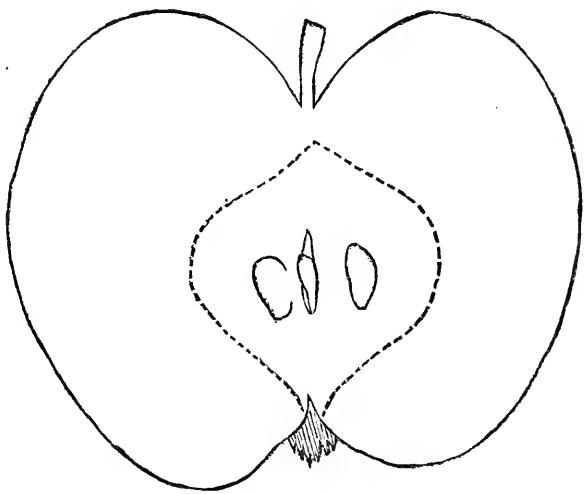
Very pretty fern cases, consisting of circular glass shades with terra cotta bases, can now be bought at the large crockery and glass stores at reasonable prices, or they can be bought ready stocked at the florists; but we think our readers will find pleasure in collecting the plants, and if they will follow these directions, they will have, with little of trouble or expense, a thing of beauty, which, if not a joy forever, will be one through the desolate days of winter, until spring returns to paint the earth anew with flowers.

A NEW ILLINOIS APPLE.

By W. C. Flagg, Alton, Ill.

This new apple is sent me by J. S. Peers, Esq., of Collinsville, Madison County, Illinois. It is said to be a seedling from a tree planted ten years ago, by N. L. Ripley, of that place. Mr. Peers, in deference to the nomenclature of "Claret" already attached, proposes to call it the "Ripley Claret Seedling," but for popular use, I suggest "Ripley," as better.

The fruit is medium to large in size, oblate in form, and generally somewhat conical; halves unequal, making it somewhat lop-sided. The specimens sent, which are under the average size, measure three inches in breadth by two and five eighths in height. The calyx is large



Ripley Apple.

and closed, the stem medium in length and rather slender. The skin is smooth and shining, and the color a greenish ground, nearly covered with a brilliant crimson, and marked with numerous white dots. Flesh white, firm, moderately juicy; sub-acid, and in quality "very good" to "best." Core rather small, and closed, so as to make the centre of the apple nearly solid. Season, the present year, last of August and first September; but this is exceptionally early.

The tree is said to be thrifty, well shaped, and tolerably productive.

NOTES OF A TRIP TO CALIFORNIA AND OREGON. — I.

By J. A. Donaldson, St. Joseph, Michigan.

In journeying across the State of Illinois, from Chicago to Burlington, and observing the well-cultivated farms, with buildings that indicate taste and thrift, the many flourishing villages, with their neat dwellings, substantial business blocks, and, in many instances, fine public buildings, it is difficult to realize the fact that the greater part of these improvements have been made in so few years, and that many of the pioneers who came to this state when most of it was but a trackless, grassy sea, are still in the vigor of manhood. There is one improvement, however, that the inhabitants do not appear to properly appreciate, and that is the planting of trees for shelter and timber. Considerable attention has been given by farmers to planting trees around their dwellings; but generally they have been too sparing. An acre or more adjoining the house, well planted, with varieties adapted to the soil and climate, would give, in a few years, if well cared for, more satisfactory returns than any part of the farm of the same area. There is no improvement outside of the house, so well calculated to dry up feminine tears over the memory of old homes, as a plantation of thrifty trees and shrubs around the dwelling.

Continuing west, through southern Iowa, over the Missouri River Railroad, we pass through a country that makes a favorable impression on the traveller. The style of the improvements, both in town and country, makes it evident that the ever-present Yankee is here to lead in matters of taste and enterprise. The apple orchards appear very thrifty, but are bearing moderately this season.

Here, as in Illinois, the people have not yet awakened to the importance of extensive forest tree planting. True, in a new country, much must be done that is indispensable; but in the older settled portions of these states much has been done that had better been deferred, if necessary, until ten or more acres of trees had been well started. Better to wait a year or two longer for the mansion to succeed the cabin, than to put off the planting of trees ten or fifteen years. The house begins to decay the moment it is built. The trees will grow vigorously for generations, adding grandeur to beauty as they grow older, and raising a monument to the memory of the planter that he can enjoy while living.

Nebraska has a pleasant look. It is settling quite rapidly, and in a few years the eastern half of the state will doubtless appear much as Iowa does to-day. Her thousands of cheap unoccupied acres, so full of bread and meat, seem to repeat, with a slight variation, Mr. Greeley's advice, — "Young man, *come* west."

The ride over the plains becomes rather wearisome, on account of the sameness of view; but this prepares one to appreciate better the mountain scenery. To persons who are taking a journey for the first time, the wild animals to be seen along the way are objects of great interest. We wish we could say as much for our wild, red brother. We sympathize with him in his poverty, but his brutal face and dirty person make his near presence intolerable. It must have been some tobacco dealer's sign that inspired Longfellow's pen.

It is quite a privilege, as we ride over the dusty and barren sage brush lands of the mountains, to be able to purchase, on the train, the luscious fruits of California, at prices, too, that prevent over-indulgence. Pears, peaches, plums, grapes, and apricots were temptingly passed every hour. Sometimes we were offered Utah apples, right from Brigham's garden.

The ride in an open car through Echo or Weber Canons affords a good view of the many curiously-formed rocks and the grand mountain scenery, and is one long to be remembered. During this ride we see for the first time crops grown by irrigation. Here, on the narrow strips of land along Weber River, the Mormons have settled. Most of them, perhaps, have come over the great sea, across the rich and open lands of Illinois, Iowa, Kansas, and Nebraska, to this narrow, arid valley, to toil for a scanty subsistence, and enjoy their newly-discovered religion. Of all animals, man is the most gullible.

They have no creeks in this country; the smallest streams are called rivers. The Humboldt appears in many places not over twenty feet from bank to bank; and Weber River would be called, East, a very moderate-sized creek. At Humboldt Station we have an opportunity of seeing what water will do for the barren alkali lands. Some twenty acres have been enclosed by the proprietor of the hotel, and irrigated by water from a spring. Fruit and shade trees have been planted, and are doing quite well. We did not have an opportunity of going over the enclosure, but were told that all kinds of vegetables do well.

The Sacramento and San Joaquin Valleys must be beautiful when clothed in green. Even now, parched and brown as they are, they have a pleasant appearance. Windmills are the chief reliance for

irrigating gardens. Some day, perhaps not distant, the rivers will be turned over the land, and steamboats compelled to wait for crops to grow.

We had a few hours to spend in San Francisco before the sailing of the steamer, and devoted most of this time to visiting commission houses, where fruit and vegetables are sold. The simple announcement that we were from the East, and desired to look at the productions of California, secured us the greatest attention. Boxes were opened, when necessary, to show us any variety not exposed to view, and with hospitality truly *Pacific*, we were invited to eat. As we devoured a huge bunch of White Muscat of Alexandria grapes, we wondered if we could ever smack our lips over Concords again. The choicest of fruits are sold at prices within the reach of all. Apples from fifty cents to one dollar and a half per bushel; Washington plums, two dollars per bushel; finest of peaches, three dollars per bushel; nice Bartlett pears, a dollar and a half to two dollars per bushel; apricots, one dollar and a quarter per bushel; White Muscat grapes, eight cents per pound, and Black Hamburgs, six cents. Vegetables were very fine, plenty, and cheap, and displayed in great variety. It is remarkable, that although California fruits are exempt from injurious insects, gardeners are very much pestered with a worm in corn.

Taking one of the steamers of the North Pacific Transportation Company, we soon found ourself facing, for the first time, the grand Pacific Ocean, and in four days arrived at Portland.

Portland, Oregon, August 21, 1871.

THE KITTATINNY BLACKBERRY.

This variety takes its name from the Kittatinny Mountains, in New Jersey, where it was found growing wild. The specimen figured was raised by Captain John B. Moore, of Concord, Mass., but owing to the dry weather, is not as large as in a more favorable season. It is now very widely disseminated, and is everywhere esteemed one of the most valuable kinds. It is longer in coming into bearing than some other kinds, but when fully established is very productive. It begins to ripen

early, and continues a long time in season. The fruit is large, rounded oblong, pretty firm, juicy, and rich. As compared with the Dorchester,

KITTATINNY BLACKBERRY.

we think it not quite so sweet, but Captain Moore informs us that the canes are decidedly more hardy.

THE AMERICAN POMOLOGICAL SOCIETY.

THE recent meeting of this society at Richmond, Va., was most gratifying in every point, and especially so as realizing the hopes which have long been entertained of meeting in the Southern States of the Union, and doing for the pomology of that part of our country what has so successfully been done in those states where the society had previously held its meetings. It is true that the work done at this meeting does but lay the foundation for thorough knowledge of fruit culture in the southern states, and yet much as has been accomplished, even where the most attention has been given to the subject, we, or those who come after us, will, in future years, regard our highest present advances as but the foundation for the pomology of that time.

The question was often asked during this meeting, What would have been the feelings of those who met twenty-three years ago in convention, in a half-experimental way, and began the work of systematizing our national pomology, if they could have foreseen the magnificent results which would flow from their meeting? It is difficult now for us to realize that we were present at that meeting, so long ago; and however it may be with others, we must confess that we had no prophetic view of the vast work which has already been accomplished, and we believe we may say of all who engaged in that meeting that they "builded better than they knew."

At the time when the first combined efforts were made for the promotion of American pomology, the varieties of good fruit known were exceedingly few, and the knowledge of even these was confined to a limited number of cultivators. The White Doyenné, Brown Bèurré, and Saint Germain pears, prized by a former generation as the finest of their fruits, had, in the sea-coast region, so far degenerated as to show the necessity of somehow finding substitutes for them if we would not be deprived of the choicest of our fruits; and to this end diligent and enthusiastic cultivators were engaged in gathering all the attainable varieties, not only of pears, but of other fruits, and we cannot better indicate the difference between the pomology of that day and this, than by the simple statement that that was the era of *collections*, this of *selections*.

We would not claim as the work of this society all the progress that has been made in the cultivation of fruit since its establishment, for

much is due to the many local horticultural and pomological societies; but if the efforts for the advancement of pomology had been confined to these societies, we should have been far behind the point where we now are. The establishment of a national society has brought together the most thorough pomologists from every part of the country, and given a national standard of excellence where otherwise only a local and comparatively imperfect test could have been applied to fruits and their culture.

As was well remarked by the president in his address, in speaking of the changes which have taken place during the existence of this society, "States and sections of the Union which were scarcely known by name, now contribute noble fruits to grace our exhibitions, and noble men to join us in efforts for the promotion of the public good;" and it was gratifying to know that the highest premium for the best collection of fruits, which two years ago was awarded to Kansas, — one of these youthful states, — was this year carried off by her still more youthful sister, Nebraska; and this prize of one hundred dollars, generously offered by the Virginia State Agricultural Society, was with equal generosity donated by the Nebraska delegates present to the American Pomological Society. Besides this collection from Nebraska, where fourteen years ago not a single fruit tree of any kind was grown, was the noble collection of two hundred and fifty varieties of apples from Kansas, and the unique collection of one hundred and eighteen varieties of apples from Des Moines County, Iowa, a section of that state where but twenty-three years ago not an apple tree was to be found. These, though not so large as some of the apples exhibited, were the admiration of all who beheld them for their perfect and unequalled purity and fairness, and deservedly received the prize of fifty dollars for the best collection of apples. A collection of two hundred varieties of apples grown near Cobden, Illinois, and nearly the same number from Franklin Davis & Co., of Richmond, were noticeable features of the exhibition. The largest exhibitions of pears were from President Wilder, who showed two hundred and thirty-two kinds, and Ellwanger and Barry, who showed one hundred and fifty-seven kinds, and received the prize for the largest and best collection, Mr. Wilder's not being entered for premium. The largest pears were, as at the last meeting, from Virginia, one of the Duchesse d'Angoulemes exhibited by Mr. G. F. B. Leighton, weighing thirty and one half ounces. The collection of California fruits, as usual, attracted much attention. We regret that we have not room to mention all the other numerous and excellent collections exhibited; but we must pass over them with the statement that the total

number of plates of fruit was over twenty-six hundred. The only disappointment felt, was at the limited exhibition of figs and other peculiar southern fruits, there being only a single box of dried figs, from our correspondent, Mrs. S. E. Byers, of Texas. The Scuppernong grape was, however, shown in quantity, and surprised some of the delegates, who were not previously acquainted with it, by its good quality.

We must not omit to acknowledge the excellent arrangements made for the meeting and exhibition of the society. The reception by the mayor of the city at the State House, the excursion down the James River on the first day, and the banquet at the close of the session, and other courtesies, will long be remembered, and the attentions of John M. Allan, Esq., President of the Virginia Pomological and Horticultural Society, who was from beginning to end indefatigable in his exertions to promote the enjoyment of the delegates, will not soon be forgotten.

Invitations to hold the next meeting at Chicago, Geneva, Leavenworth, and Indianapolis, were received; but as soon as it was known to be the desire of the president that the twenty-fifth anniversay, — which will occur two years hence, — should be celebrated at Boston, where the first idea of the society originated, these preferences were yielded with a grace which was fully appreciated by the president as well as the numerous delegation who accompanied him, and it was unanimously decided to meet in Boston in 1873. We only hope that the delegates may be as numerous, the arrangements as excellent, and the meeting as successful, as at the session held under the auspices of our Richmond friends.

We wish we could publish the excellent address of the president in full, but we have only room to say that it consisted mainly of a review of the "Lessons of Experience" gained since the formation of the society, under the heads of, 1, the beneficial influence of warm, dry seasons; 2, the advantage of draining fruit lands; 3, preparation and culture of the soil; 4, manures and their application; 5, the advantage of mulching; 6, necessity of thinning fruit; 7, insects and diseases; 8, necessity of shelter; 9, the importance of the study of meteorology; and, 10, the importance of originating new varieties. The importance of completing the society's catalogue of fruits was commended to the attention of the members. Mention was also made of three of the founders of this society, who since the last meeting have been removed by death, "like fruits fully ripened in their season," — Dr. Alfred S. Monson, of New Haven, Conn., Dr. R. T. Underhill, of Croton Point, N. Y., and Dr. Eben Wight, of Dedham, Mass. The death of M. S. Frierson, of Columbia, Tenn., one of the vice-presidents of the society,

was also announced. The address concluded with the following paragraph, which will also form a most fitting close to this notice: —

"Long may the members of this Society meet together as friends and mutual helpers, dispensing and receiving good, and may your efforts for promoting this most beautiful of all arts, this health-preserving and life-prolonging industry, be crowned with continued success. May the Society go on conferring blessings on our country, until every hearthstone and fireside shall be gladdened with the golden fruits of summer and autumn, until thanksgiving and the perfume of the orchard shall ascend together like incense from the altar of every family in our broad land, and the whole world realize, as in the beginning, the blissful fruition of dwelling in the 'Garden of the Lord.' And when at last the chain of friendship, which has bound so many of us together in labor and love, shall be broken; when the last link shall be sundered, and the fruits of this world shall delight us no more; when the culture, training, and sorrows of earth shall culminate in the purity, perfection, and bliss of heaven, may we all sit down together at that feast of immortal fruits,

> 'Where life fills the wine-cup, and love makes it clear;
> Where Gilead's balm in its freshness shall flow
> O'er the wounds which the pruning-knife gave us below.'"

FOREST TREE PLANTING.

By George W. Minier, Minier, Ill.

In the April number of your excellent Journal is an article from my worthy and very much esteemed friend, Dr. J. A. Warder, on "Timber Planting on the Prairies and elsewhere," written in his usual beautiful style, but, as it appears to me, not with his usual discrimination. I have waited some months for Bryant, or some one else, to criticise this article; but as no one seems to be willing to undertake the task, I do it with some reluctance. I certainly should not pay any attention to this matter if it was from an ordinary pen. But Dr. Warder's name is a tower of strength, and of deserved authority every way.

I indorse every word on the subject of tree planting, both as to its utility and necessity, but must differ from him in regard to some of the varieties. Trees should be planted by every one owning a prairie farm;

and for this purpose no trees are so useful and practical as those growing at our very doors, indigenous to our soil.

I would have exotics tried, experimented with. Treat them with due consideration, with all hospitality; but treat them as strangers, not as bosom friends. You must "summer and winter a man before you know him;" much more a tree. And where is it that my friend finds that the "black walnut is not by any means promising as a timber tree for the prairie, except in favorable localities"? And why remark, in the same connection, that "it requires from one to two centuries to bring it to perfection for lumber"? Now, is not this true of all timber trees? Why, then, make the black walnut the scape-goat? The fact is, no tree has attained such magnitude, or become so useful for posts, rails, and lumber, in the brief thirty years that this part of Illinois has been settled, as the black walnut. Why, yonder is a grove of butternut and black walnut, on my farm, in full view from where I am now writing, which sets at rest the question of adaptability and practicability of both these species. I have (from the seed), one year old plants of the following trees: black walnut, white walnut (butternut), red elm, hard maple, soft or white maple, yellow poplar (tulip tree), blue ash, white ash, linden or bass wood, and white elm, least useful and least valuable. Of course I have not mentioned those tenth-rate trees, cotton-wood, ailanthus, black locusts (good but for the borers), catalpa, and such like, of which I wish to say now, as I have often said before, that such are unfit for a white man to raise. Indeed, they have no desirable qualities which a farmer "is bound to respect."

The walnuts are at our doors. Everybody can, and ought to plant them. The ash and the maples are equally attainable, and the elms will come themselves if we let them.

I know it is almost heresy to speak against the white elm in New England, especially since so lavishly indorsed by Mr. Beecher. But for all purpose, save shade and ornament it is simply a "scalawag." But why my friend should mention in the society of respectable trees such an unmitigated nuisance as "silver poplar," is amazing.

As to the conifers, I most heartily indorse them, and can show some worthy specimens. I wish also to say that such men as Douglas, Edwards, Schofield, and a host of others, are well deserving the gratitude of all Prairiedom.

With no desire to detract from the just fame of my good friend, but with desire to correct even a trifling error on so important a matter as tree planting, I beg to subscribe myself his sincere friend.

Dr. Wylie's Seedling Grapes. — We have before mentioned the very remarkable hybrid grapes produced by Dr. Wylie, of Chester, South Carolina. About forty varieties were exhibited by him at the meeting of the Pomological Society at Richmond. It would have been a good day's work to thoroughly examine and test such a collection, and the committee on native fruits were therefore obliged to content themselves with the remark that "They were for the greater part of such excellent character as to preclude the committee from deciding which was the best. One, however, Peter Wylie, No. 1, was of a particularly excellent character. The committee feel that too much can scarcely be said in praise of Dr. Wylie's persevering efforts in the improvement of the grape."

Certainly the doctor has either some very remarkable varieties, or a very remarkable grape climate, or both. It remains to be seen how they will succeed in other localities, especially more northern ones; but we may add that when we inquired of him what ones he thought most likely to succeed at the North, he named the Peter Wylie, of which the committee thought so highly.

We had the pleasure, on the 29th of August, of sitting down with Hon. M. P. Wilder, and examining carefully several varieties of these grapes which he had just received from Dr. Wylie. Thinking that the notes then made will interest our readers, we append them. The parts in quotation marks are the remarks made by Dr. Wylie on the different kinds, and are followed by the notes made at the time mentioned.

"Royal Muscadine, or Red Frontignan, and Clinton, No. 3. A great and never-failing bearer. This is the same which was shown to you and others as Clinton and Foreign, No. 3, at Philadelphia, in 1869. I have concluded, in

naming, always to let the female name be first in the name. This I consider a success, at least in this climate; it has borne for years. It has overborne, and was too extensively layered this and last year."

Leaf has the appearance of a native grape, thick, rugose underneath, medium size, bunch resembles Delawâre; size of berries similar to Delaware, perhaps a trifle larger; color reddish amber, lighter than Catawba, very sweet, rich, honeyed, scarcely any pulp, holds on well, berries round, seeds roundish.

"Labrusca and Foreign No. 1, an imperfect bunch, large Labrusca leaves, no rot or mildew."

Berry round, medium size, chestnut color, with blue bloom, like a fully ripened Catawba, which it also resembles in flavor; skin thick, seeds small, very little pulp, rich vinous flavor, adheres strongly to the pedicel.

"Clinton and Syrian No. 2; first year bearing, have some fair-sized for Richmond, hardly ripe; have sixty or seventy vines of this cross, mostly white, that have shown fruit this season; strong, healthy vine. Notice foliage particularly."

Foliage pretty large, rather thick, without any foreign look; berries small, round, transparent, firm, bronzy white, sweet, rich, with a peculiar flavor; texture resembles that of the Syrian; seeds large, long; skin thick.

"Clinton and Foreign No. 14 (Clinton and Muscat Hamburg). This bore a most enormous crop first year bearing. Bees slipped under paper leaf, and ate upper berry. It resembles in foliage Clinton (its mother), so much that I neglected to thin until it was near coloring, then took about half, and still it has a very full crop of perfect fruit. Notice the Clinton leaf, no rot or mildew."

Leaf thin, with a decided Clinton look; berry and bunch, in size and color, show its Clinton parentage, as also the flavor; pulp slight, color red, sweet, mixed with vinous.

"Clinton and Foreign No. 1, alias Janie Wylie. This has been hanging ripe over a month."

Berry above medium size, very dark chestnut, almost black, with blue bloom; bites like a Black Hamburg; skin in the mouth seems like Black Hamburg. Rich, sweet, and spirited; leaf rather thin, and without any pubescence.

The Salem Grape. — The Country Gentleman says, "This variety continues year after year to bear uniformly large, good fruit. Although it will not compare in rich, high flavor with the Delaware, Walter, Diana, or Creveling, yet the quality, such as it is, is exceedingly agreeable and pleasant. The growth is strong and vigorous, and while some other varieties of Rogers' Hybrids have been variable with seasons, this continues to ripen uniformly and without change."

English Horticultural Exhibitions. — Mr. James Vick writes to the American Rural Home from Liverpool, that he attended a horticultural exhibition at St. George's Hall the day after he arrived there, and that it was remarkable only for splendid specimens of hot-house plants and pine-apples; and these he found to be the leading features in all the horticultural exhibitions which he attended in England.

THE EFFECT OF SOD IN KEEPING SOIL COOL. — A contemporary must have astonished its readers, by copying in its July number the following from Johnson : —

" The effect of sod on the temperature of the soil was studied by Malaguti and Durocher. They observed that it hindered the warming of the soil to about the same extent as a layer of earth three inches deep." We have some hope that our contemporary will now tell its readers, that in America, the writers for the Gardener's Monthly have found still more striking results than these Italians found. The difference here is a six inch, instead of three.

Gardener's Monthly.

Certainly, we will tell our readers; we will do almost anything to oblige the Gardener's Monthly. But the difference between the observations in Italy and those in America leads us to ask whether the effect of the sod covering may not vary in different parts of this country, and in different seasons in the same part of the country ; and whether the effect is the same in cold, heavy soils, as in light, warm ones, and in damp soils as in dry ones, The Gardener's Monthly knows everything, including the Mexican Ever-bearing Strawberry — will it be so good as to enlighten us on these points, and also to inform us what is the exact temperature of the soil best adapted to the roots of pear and other trees at different seasons of the year ? We would also like to be informed whether or not the aggregate surface of the leaves of a piece of grass when kept short is greater than that of the ground on which they grow, and whether the grass or the soil evaporates most moisture.

The Gardener's Monthly thinks we must have astonished our readers by copying the paragraph from Johnson. We do not know why they should be astonished, and we don't think they were. Certainly we have never denied, and we never heard of anybody who denied the effect of sod in keeping the soil cool ; and the Gardener's Monthly, which, if it does not directly charge us with such a denial, at least implies it, is, in so doing, guilty of a want of fairness, which, we regret to say, is too characteristic of that journal. There are many well authenticated instances in which pear trees have done better in grass than in tilled soil ; one such will be found mentioned in our Volume VII., page 232. But after all, the fact remains, that the best pears exhibited before the Massachusetts Horticultural Society, which are, to say the least, as good as any raised anywhere in the United States, are grown in well-tilled soil — " hot sun-roasted earth," for all the sod there is to hinder it — if that description suits our contemporary better. We have no objection in the world to seizing this horn of the dilemma. We have nothing further to say on this subject at present, except to express the wish that the editor of the Gardener's Monthly were as amiable in his journal as he is in personal intercourse.

PALMS ON SAN BERNARDINO MOUNTAIN. — The Angeles Star (Cal.) says it is not generally known that a species of native palm grows luxuriantly in the cañons on the eastern slope of San Bernardino mountain. It bears a small black fruit, of a sweetish taste, and which is highly prized by the Indians as an article of food. The fruit grows in a single cluster, about the size of a bushel basket.

THE WESTERN RURAL, of October 14, comes to us in the form of a "Fire Extra" of two pages, issued by means of facilities afforded by the Detroit Advertiser and Tribune Company, the office of the Rural having been destroyed in the great fire, with all the type, presses, and other machinery, as well as the files of the paper, the editor's agricultural library, &c. The editor's residence was also destroyed, with his private library of about two thousand volumes, the accumulations of twenty years. New type was, however, ordered by telegraph the morning after the fire, and the Rural hopes to be out in the old style, but in an entire new dress, within a month from the time of the fire. It has our best wishes that it may more than recover its former prosperity. As we write this, the papers which have been filled with the story of the terrible calamity which has befallen Chicago, are telling of the wondrous energy displayed in reconstruction, and we have no doubt that this city, which has been the marvel of the earth for its unparalleled growth, will be still more a marvel for its recuperative power.

THE PRAIRIE FARMER has sent out a sheet filled with the details of the fearful calamity which has come upon Chicago, but full also of energy and pluck, and hope and promise for the future. Their building being situated in the very heart of the business portion of the city, was speedily swept from existence. The front wall was of Athens marble, and all the other outer walls of brick; but so intense was the heat, and so devouring the flames, that in fifteen minutes from the time of the attack not one stone was left upon another. Engines, presses, type, engravings, books, paper, forms ready for the press, all were destroyed. The library, embracing almost every standard work on agriculture and horticulture ever printed in the English language, the reports of all the State Agricultural Societies that have published their transactions, and bound volumes of a large number of agricultural and horticultural journals, — a collection which had required over thirty years' time to make, and which was in many respects the most complete of any in the country, — was lost. Full files of the Prairie Farmer, from the beginning, were preserved, with all the account books. The first train from Alton, after the news of the conflagration reached that city, brought Dr. Hull, the horticultural editor, and through his generosity this number of the Prairie Farmer is issued. Messrs. Orange Judd & Co., of the American Agriculturist, also sent a despatch, offering to issue the next number of the paper at their expense.

"The ruins of Chicago constitute to-day the best foundation for business success that the world affords! Chicago has never been but the index of the great country that surrounds it. You, our readers, with your labor and your produce, built this new wonder of the world. . . . The paper will be mailed to you, each and all, next week, we hope, in full size, and with even more than its usual variety of matter." Such is the brave spirit with which the Chicagoans are rising from the terrible calamity which has overwhelmed them.

THE BRADSHAW PLUM. — At the exhibition of the Puget Sound Farmer's Club, Dr. Alfred Eggers exhibited specimens of the Bradshaw plum, nine of which weighed two pounds. This variety is thought, for hardiness, size, quality, and productiveness, to excel any other in the orchards of Washington Territory.

CULTURE OF FRUIT TREES. — We think it would be difficult to state the truth in regard to the "grass question" in the cultivation of fruit trees better or more concisely than the following excellent remarks from the Country Gentleman: —

"In the recent admirable address of President Wilder, at Richmond, Virginia, before the American Pomological Society, we perceive that he fully sustains, as the result of continued experience, the importance of good clean culture, as opposed to the old practice of allowing young orchards to grow to grass. He remarks, 'it seems scarcely necessary in this presence to say that thorough preparation and enrichment of such soils as are not already rich, is essential. Ordinary farm culture will not produce the highest class of fruits; they must have garden culture, and with this they never fail. After this thorough preparation, the cleaner the culture the better, at least in the older States, where the soils have been depleted by cropping.' This is the practice which we have repeatedly urged, especially for young orchards, for more than thirty years; yet even now, many fine newly-set young orchards are injured or ruined by being set out and allowed to stand in grass. There are a few instances at the East, and frequent ones at the West, where the soils are so rich naturally that after a few years' growth, it is well to check the luxuriance by seeding to grass — always observing as a guide or index in the course of treatment to be adopted, *the length of growth of the annual shoots.* This index serves as a better guide than all the disquisitions and arguments, pro and con, that would fill a volume, without it. Grass in full grown orchards (especially if cropped short and top-dressed by sheep running in them), which does not prevent the trees from growing a foot or two annually, may be admitted; but if the growth is feeble, keep the surface clean."

THE AUTUMN FOLIAGE this year, and in this neighborhood, has been unusually beautiful, and the leaves have taken on their brilliant colors unusually early. We have never seen the fruit trees, especially the pears, so brilliant. We noted particularly Leopold 1st, Bergamotte Fortunée, and Florimond Parent, as brilliant crimson, Philadelphia very similar, but with a Magenta tint, the old Colmar and the Golden Beurré varying from orange to crimson, and Theodore Van Mons from yellow to orange.

VEGETABLE PLANTING IN AUTUMN. — Now is a good time to plant, not only hardy flower roots, but perennial vegetables, especially those which, like asparagus and rhubarb, commence growing early in spring. They will not only thrive better, but you will be glad, when you come to the short, hurrying spring, that you haven't it to do then.

THE DELAWARE PEACH CROP. — Delaware has the past season shipped 78,904,800 pounds of peaches. The number of baskets is 2,649,173.

AN OLD GRAPE VINE. — F. P. Hutchins, of Oxford, Mass., has a grape vine nearly two hundred years old, which has just ripened four bushels of fruit.

Pennsylvania Horticultural Society. — We had the pleasure on our return from Richmond, of taking a look at the Annual Exhibition of the Pennsylvania Horticultural Society. The specimen plants, for which this society is renowned, and which, when we were there two years ago, were crowded into the background to make room for the great collection of fruit brought together by the meeting of the Pomological Society, were out in full force. A description of some of them is given in this number of the Journal by our correspondent, Mr. Buist; but we may add that the plant of *Sphærogyne latifolia* exhibited by him, is the only one in the country. Besides this we noticed in his collection a fine plant of *Adiantum Farleyense*, the most beautiful of all ferns, *Begonia Pearcei superba*, with large pale yellow flowers, a remarkable fine plant of *Anthurium regale*, and of *Caladium Meyerbeer*, and also the *Cyrtodeira metallica* and *C. chontalensis*, described by Mr. Buist, who, we are happy to say, will continue his notes in a future number.

Alexander Newett, gardener to H. Pratt McKean, exhibited finely-grown plants of *Philodendron pertusum*, *Beaumontia Baumgardii*, *Fittonia gigantea*, *Gymnogramma chrysophylla*, *G. peruviana argyrophylla*, *G. sulphurenm*, *Solanum atropurpureum*, and *Bilbergia thyrsoides*. William Joyce, gardener to Mrs. M. W. Baldwin, exhibited a fine collection of plants, among which we were particularly struck with *Boehmeria argentea* and *Echites nutans*. A plant of *Agave filifera* on the centre fruit table, with its tall slender flower stalk, attracted much attention. A fine plant of *Clerodendron Thompsonii* was exhibited, but we omitted to note the name of the contributor. One of the most interesting features of the exhibition was the collection of one hundred and sixty species of conifers, in pots, from the nurseries of Hoopes, Brother, and Thomas, including many new, rare, curious, and beautiful kinds.

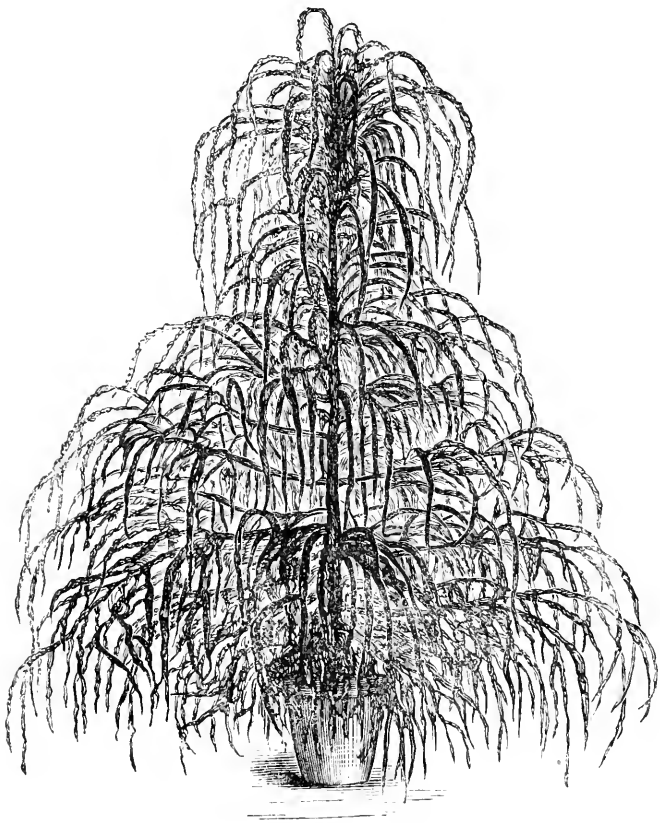
Among fruits, the pears took the lead. Mr. E. Satterthwaite, of Philadelphia, and Hovey & Co., of Boston, showed very extensive collections. Mr. Satterthwaite's dish of Dana's Hovey was very fine, and his Prince's St. Germain were extra large. Mr. Rutter showed very fine Doyenné du Comice. The pears from Tobias Martin, of Mercersburg, whose orchards have been described in the Journal, though, as we thought, not quite so large as he exhibited two years ago, were remarkably fair and clear. Philip Reilly, gardener to Mrs. S. V. Merrick, showed a fine collection of foreign grapes.

The exhibition of vegetables, under a tent outside of the hall, was extensive and of excellent quality. The largest contribution was from A. L. Felton. His vegetables were in great variety and well grown, and besides the ordinary kinds included a curious and interesting collection of gourds. E. W. Heston exhibited the largest Lima beans we have ever seen, some of the pods measuring an inch and a half in width and seven inches in length.

Rhode Island Horticultural Society. — The last annual exhibition of this society, at Providence, is said to have been the finest ever held by the society. Over one thousand dishes of fruit and one thousand bottles of cut flowers, besides stove plants, etc., were shown.

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

AMARANTHUS SALICIFOLIUS. — Of the genus *Amaranthus* there are species which have been long cultivated in gardens, for their flowers — such as Love lies Bleeding and the Prince's Feather (*A. caudatus* and *A. hypochondriacus*), which are still to be found in some old-fashioned gardens, and especially in cottage gardens; and one not cultivated for its flowers but for its lovely rosy-pur-



AMARANTHUS SALICIFOLIUS.

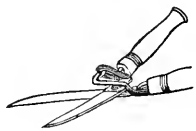
ple leaves, translucent in the sun, is to be met in almost every modern flower garden. This is *A. melancholicus ruber*, not at all a melancholy looking plant, which the others are. It was one of the introductions from Japan, of our friend, the late Mr. John Gould Veitch; and to-day we produce a representation of, in its way, a not less beautiful member of the same family, *A. salicifolius*, from

Manilla, which received, and deservedly so, the highest encomiums from all leading horticulturists at the meeting of the Royal Horticultural Society at Kensington, on the sixth of September. Whether it is a distinct species or not, we cannot at present say; but that it is entirely different from anything we know, and singularly beautiful, we can unhesitatingly affirm. Its habit and general character have been well represented by our engraver. It is impossible to conceive anything more graceful than the appearance of the plants shown at Kensington, for they looked like so many fountains weeping their waters, and it is equally impossible to give an adequate idea of the beauty of the colors of the foliage. The plants were about three feet high, and we described them as having long, narrow, graceful, weeping leaves, most of them purplish rose with an orange tinge, others bronzed metallic green. The plants exhibited were lifted from the open ground. Messrs. Veitch add, that it is grown from seed sown in February, and is treated as a half-hardy annual, being gradually hardened off, and planted out in the borders in June. We have only to add, in the words with which we concluded our notice last week — it is quite certain that this Amaranthus will prove a great acquisition; and further, that it will be so, both for in-door and out-door decoration. We need scarcely remark that a first-class certificate was unanimously voted for it by the Floral Committee of the Royal Horticultural Society. *English Journal of Horticulture.*

The Delphinium nudicaule, recently introduced by Mr. Thompson, of Ipswich, proves to be a much finer garden plant than was at first supposed. It is a tuberous-rooted and hardy species, with the usual finger-lobed leaves; but what is most remarkable about it are the brilliant scarlet flowers which contrast so strongly with the usual blue tint which pervades the genus. We have, indeed, already had a scarlet larkspur in the *D. cardinale*, but in that the flowers were of a dull red only, and the plant itself seemed unmanageable. Here, on the contrary, the color is bright and effective, and the plant appears to grow freely enough, planted out in moderately light soil. The flowers with these rosy spurs are very suggestive of some brilliant Tropæolum, such as *T. tricolorum*, only that the mouth of the calyx is more widely spreading than in the flowers of that plant, approaching in size and form very nearly to those of *D. sinense*. Every one should try whether this fine novelty will thrive under the conditions which his garden affords; and those who find that it will do so, will discover that they have added a gem to their collection. There is an opinion abroad, formed possibly from the exhibition of indifferent examples, that the plant is less meritorious than it really is seen to be when growing in the garden, and Mr. Thompson informs us that he has himself been surprised at the different effect produced by bringing the plant into an ordinary sitting-room. In the open ground, whether in strong or weak light, the color is glowing, and in a mass very striking, but in a room it is dull. Our own opinion, formed from watching the development of the plant in the open ground, is, that it is a really good plant. *Gardener's Chronicle.*

Distribution of Bedding Plants. — The surplus bedding plants in the parks of London are to be distributed among the poor inhabitants of that city.

An Improvement in Garden Shears. — Every one who has clipped a hedge, or cut grass with garden shears, knows how difficult it is to keep the edges of the blades together so as to cut effectually; and how vexatious it is to have the grass or twigs get between the blades. We find in the Gardener's Chronicle an account of a very ingenious contrivance for overcoming this trouble. It is invented by Mr. F. J. Drechsler, and is called a Patent Movable Spring. Its effect is to press the cutting edges of the shears together, as one does usually when using this implement, by a strain of the muscles; only when the spring is used, the hands and arms, being relieved from this particular ac-



tion, have more freedom of motion. It consists of a peculiarly bent iron hook, one end of which is fitted into the handle on one side, while on the other handle is a stout india-rubber ring, which, when the shears are in use, is pulled over the opposite end of the hook. It can be applied to any shears, and removed again in a few seconds, and very much facilitates the working of them, its special office being to press the blades together so as to insure a cleaner cut.

Raising Begonias from Leaves. — Variegated Begonias are usually propagated from leaves. To treat them in this way, select of this season's leaves, such as are grown nearly or quite to their full size, and consequently are firm and not likely to damp off. Take the leaves off with about one or two inches of leaf-stalk, and if you require as many plants from a leaf as you can obtain, take an ordinary shallow seed-pan, and after preparing it in the usual way, insert the stalk portion of the leaf near the side of the pan, and peg the leaf flat down upon the surface. Before doing this, it is as well to cut through the principal ribs or veins with a sharp knife. Plenty of roots will soon be emitted from the cuts, and finally young buds will start, and tiny plants be the result. Plants will also be produced where the pegs are punched through the leaf. It is impossible to say how many leaves a pan will hold, for this part of the question depends entirely upon its size and that of the leaves. We cover the entire surface of our pans, keeping the stalks by the side of the pans. If we have plenty of leaves to deal with, we adopt a slightly different method of procedure. Instead of using the leaf in its entirety, we take the leaf with a couple of inches of stalk, as before, and then trim the blade of the leaf away, leaving a small portion, about two or three inches in diameter, adhering to the stalk. These we insert round the edges of the cutting-pots, in exactly the same way as an ordinary cutting. It is not advisable to keep these cuttings too close, or give them too much water, for both conditions, either together or separately, are sufficient to cause them to rot. When they are nicely rooted, and the young plants are formed, pot off into sixties, and grow them liberally until the end of September, when they must have

less water and be kept rather quiet. It is a very bad plan to keep this section of begonias growing all the winter, for the constitution of the plant becomes so thoroughly weakened, that they are unable to make a free, vigorous growth in the spring, when it is required of them. *Floral World.*

Doronicum caucasicum. — In one of the newly-formed herbaceous borders at Chiswick, Mr. Barron has a capital clump of this plant, that is now a mass of golden yellow flowers. It deserves attention because of its great value as a spring blooming plant for the decoration of the flower garden, being low in growth, thoroughly hardy, and early flowering. At Belvoir it is largely used by Mr. W. Ingram, in the composition of some of those unrivalled beds for which that place is so famous, but is rarely met with elsewhere. It is propagated by root division, and a somewhat light soil, with a fair drainage beneath, appears to suit it best. *Gardener's Chronicle.*

Hardiness of Centaurea candidissima. — I imagine that it is not generally known that this species of *Centaurea*, so much in use, and so essential in the modern practice of flower gardening, is in reality perfectly hardy. I have had it tested through the last winter, in different situations, one of them behind a north wall, where the sun's rays could not reach from September till March, and another at the base of a south wall, with full open exposure. The frost was long and severe, and a better trial of its power of endurance could scarcely have been had, as we had little or no snow to cover the ground. In some open and exposed places the frost penetrated a foot or more into the ground. Notwithstanding all this, the *Centaureas* stood unscathed. It was interesting to observe, when a thaw came, that while an adjacent quarter of Globe Artichokes was killed to the surface, the *Centaureas* stood up quite erect and firm. As a proof that it is not necessary to coddle up these plants under glass, I may add that we obtained our best batch of spring cuttings from those at the bottom of the south wall; for although we had some six or seven dozen pots under glass, the cuttings from them were not so sturdy and firm as the out-door ones. It will be an important matter to many to be able to save the winter room these plants occupy. *J. Webster, Gordon Castle, in Florist and Pomologist.*

A Harvest Trophy. — Messrs. Sutton & Sons, of Reading, have erected at the Crystal Palace, a harvest trophy in the centre transept, affording one of the most complete displays of the produce of the earth ever exhibited. Neither trouble nor expense has been spared to make the collection worthy of the occasion. The trophy consists of two hundred varieties of Grasses, Mangold Wurzels of twenty pounds each, Swedes of sixteen pounds each, turnips, and other varieties of agricultural roots. Of potatoes, there are seventy-five varieties, as well as many other horticultural products. Of apples and pears, Messrs. Sutton have seventy-five dishes each, in addition to other fruits. The trophy is fifty feet in length, with a tower at each end twenty-five feet high, the whole surmounted with magnificent pampas grass, and sheaves of wheat, barley, oats, &c.

A Forest in Trinidad is thus described by a recent writer: —

"In Europe a forest is usually made up of one dominant plant — of firs or of pines, of oaks or of beeches, of birch or of heather. Here, no two plants seem alike. There are more species on an acre here than in all the New Forest, Savernake, or Sherwood. Stems rough, smooth, prickly, round, fluted, stilted upright, sloping, branched, arched, jointed, opposite-leaved, alternate-leaved, leafless, or covered with leaves of every conceivable pattern, are jumbled together, till the eye and brain are tired of continually asking, "What next?" The stems are of every color, copper, pink, gray, green, brown, black as if burnt, marbled with lichens, many of them silvery white, gleaming afar in the bush, furred with mosses and delicate creeping film-ferns, or laced with air roots of some parasite aloft. Up this stem scrambles a climbing Seguine (*Philodendron*), with entire leaves; up the next, another quite different, with deeply cut leaves; up the next, the Ceriman (*Monstera pertusa*) spreads its huge leaves, latticed and forked, again and again. So fast do they grow that they have not time to fill up the spaces between their nerves, and are consequently full of oval holes; and so fast does its spadix of flowers expand, that an actual genial heat and fire of passion, which may be tested by the thermometer, or even by the hand, is given off during fructification. Look on the next stem; up it and down, a climbing fern, which is often seen in hot-houses, has tangled its finely-cut fronds; up the next a quite different fern is crawling, by pressing tightly to the rough bark its creeping root-stalks, furred like a hare's leg; up the next the grim little griffe-chatte plant has walked by numberless clusters of small cat's claws, which lay hold of the bark.

Color of Flowers grown in Darkness. — From some experiments recently made by Dr. R. McDonnell, of Dublin, it appears that of a series of hyacinths flowered in a perfectly dark cellar, the green leaves were thoroughly blanched, while the flowers of the red variety came quite white; those of the yellow practically so, but those of the violet-blue sorts were unaffected.

Florist and Pomologist.

Soil for Echeveria metallica. — Two parts light sandy loam, one part leaf soil, one part crocks, and one part sharp sand. The drainage must be efficient, and if watered sparingly, the plants will winter safely.

English Journal of Horticulture.

Lord Palmerston Peach. — If this new variety is as beautiful as the colored plate in the Florist and Pomologist, nothing more can possibly be asked for in that respect. It is a seedling raised by Mr. Rivers, from the Princess of Wales, which variety was raised by him from the Pavie de Pompone. It is described as of the largest size, pale sulphur-yellow, the exposed parts being flushed with dull crimson, over which was disposed in crowded blotches a deeper or purplish-red tint, the whole of the highly colored part of the fruit thus acquiring a marbled character. The flesh is firm and slightly adherent when not fully ripened, but when fully matured it is melting and of rich and pleasant flavor. It ripens late. The glands of the leaves are very small, roundish-reniform; the flowers are among the largest of all peaches, and afford quite a floral sight.

FICUS ELASTICA PROPAGATION. — *Ficus elastica* is by no means difficult to propagate, and the present moment is very suitable for the work. Cut the well-matured portion of the stem into lengths of two inches each, with a pair of leaves to each, then split the stem down the centre, and lay the pieces on the green-house shelf for a few hours. Insert them singly in pots filled with light, sandy soil; bury a portion of the stem about an inch below the surface, and secure the leaf to a short stake to prevent its becoming loose. The cutting pots should be placed in a warm corner of the green-house, unless you have the convenience of a cucumber or melon frame; the frame is preferable, but they will strike in an ordinary green-house at this season of the year. Although *Ficus elastica* is valuable for the decoration of in-door apartments and conservatories during the summer season, it requires a temperature rather higher than that of the ordinary green-house during the winter to keep it in good health. In wintering it in the green-house, it is essential to keep the plants rather dry at the roots. *Floral World.*

COCKCHAFERS. — It is stated in "Nature" that the cockchafer has been introduced into New Zealand; but the enemy to the cockchafer, the rook, has been left at home. Would not it be well to introduce some rooks into this country to eat up our cockchafers or May bugs? The larvæ are, however, greedily eaten by crows, and both larvæ and beetles by fowls. The skunk also destroys large quantities of the beetles.

THE ABERDEEN STRAWBERRY TRADE. — While we are boasting of the magnitude of the strawberry trade at Norfolk, Delaware, and other places in this country, the Gardener's Magazine has something to say of Aberdeen strawberries. That city has long and justly been famed for producing strawberries of the finest quality, and the last season appears to have been one of the most successful on record for the market gardeners there. Besides the large quantities used by private families, in the town and district, and the still greater quantities manufactured in the local preserving establishments, the exports of this fruit amounted to about forty tons.

DATES IN PERSIA. — Owing to the famine in Persia, the authorities have prohibited the exportation of dates from Bussorah, as they are of great use for food in that country. From twelve to fifteen thousand tons per annum are usually received in England from Persia.

DRYING FERNS. — Lay them flat between paper — bibulous paper is best, but even old newspapers will do; the greater the bulk of paper between the specimens the better; there should be at least several layers. Then press closely with a heavy weight. If you use lattice-work frames between every few layers, you need not change them till dry; if not, they should be changed two or three times into dry paper, at intervals of a day or two, according to the amount of dampness in them. *Gardener's Chronicle.*

THE Editors of "Tilton's Journal of Horticulture" cordially invite all interested in the various branches of horticulture to send questions upon any subject on which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to inquiries in regard to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to horticulturists.

We would especially invite our friends to communicate any little items of experience for our "Notes and Gleanings," and also the results of experiments. Such items are always readable, and of general interest.

We must, however, request that no one will write to the contributors to our columns upon subjects communicated to the Magazine.

Anonymous communications cannot be noticed: we require the name and address of our correspondents as pledges of good faith.

Rejected communications will be returned when accompanied by the requisite number of stamps.

ALBANY. — The "Italian Sunflower" which is said to be so extensively cultivated by the farmers of California, is probably the *Helianthus tuberosus*. It produces a tuberous root, which is eaten pickled, or raw as a salad, or boiled as a substitute for potatoes. Improved varieties have been produced, some of which are nearly equal in quality to the potato. The tubers will remain sound in the ground through the winter, sending up new plants in the spring, and hence the roots sometimes become troublesome in gardens, and it has also become wild in fence rows. The name of Jerusalem Artichoke, by which it is also known, is a corruption of the Italian name, *Girasole*, or Sunflower. It is closely allied to the common sunflower.

S. T. — Whatever may have been told you of the White Seeded Wax Podded Bean, described and figured in our January number, by seedsmen who had not got it for sale, there is certainly such a variety, for we have raised it the past summer, and can testify both to its beauty and excellent quality. The seed was scarce last spring, but will be more plenty another year.

W. H. B., Plattsburg, N. Y. — The specimens of crabs came duly to hand. The fruit is of good size for a crab, though not the largest. The quality did not appear to us to be superior, but we would like to test it again another season, and any others of your seedlings which may be in fruit. The stem is very short for a crab, but we did not notice any other peculiarity about the fruit.

J. M. W. — We have noticed that the old spelling, *cion*, is coming into use again instead of *scion*. We know of no reason for the change, except that it saves writing one letter.

Q. Q. — The plant cultivated in the Southern States under the name of "tanyah," is the *Colocassia esculenta*, or *Caladium esculentum*. It is cultivated in northern gardens for the sake of its enormous foliage, which is very ornamental; but the root is tender, and must be taken up in autumn and protected from frost. We have seen the roots for sale as an esculent vegetable in a southern market, but have never tasted them. They are said to be as nutritious and palatable as the common potato. The root is about the size and shape of a French turnip.

W. W. H., Rutland, Meigs Co., Ohio. — We know of no means of destroying the black locust other than by persistently grubbing them up like any other tree; but the habit of the locust of sending up suckers, makes it more difficult to exterminate them than most other trees. The grubbing will be most effectual if performed in the month of August. A sufficient quantity of salt to destroy the locusts would probably destroy everything else.

T. P. S., Salem, Mass. — Orchids cannot be cultivated as parlor plants.

O. V. — The white "vegetable eggs" which you saw at the horticultural exhibition, are not the fruit of the "Egg Plant," as it is commonly called (*Solanum melongena*), but a species of gourd, and consequently allied to the squashes and melons. It is not eatable. The Egg Plant is allied to the potato and tomato. There is a white variety of it, but it is less esteemed than the purple, and less frequently seen.

P. A. L., New York. — The reason why the seed of double portulaccas and other double flowers is so scarce and costly, — though they have been introduced a number of years, — is, that they *are* double, that is, some of the organs whose office is to perfect the seed, have been transformed into petals, and hence the quantity of seed produced is very small, and must command a high price.

S. N., Boston. — There is no need of your waiting till every leaf has fallen from your dwarf pear trees before removing them. You can transplant as soon as the leaves are loosened, so as to be easily stripped off by passing the hand down the shoots; and though the ground may not freeze immediately, we are very likely to have cold storms, which will make it cold and damp, and less pleasant to work in as well as less favorable for the trees. We would strip off the leaves, as they may still evaporate a little moisture, and the loss will not be supplied by a newly-planted tree. Protect the roots with a covering of litter or coarse manure on the surface of the ground as far as they reach.

N. S. N. — A convenient way of making liquid manure, is to put a teaspoonful of guano in a quart of water, and use once a week. Don't think you are going to make your plants grow twice as fast by using it twice as strong; you had much better use it weaker than stronger.

Mrs. J. H. B., Dyer Station, Lake Co., Ind. — *Physianthus albus* is generally considered a green-house plant; but it has stood the winter in the vicinity of Boston. It should, however, have a slight covering.

A. P. J., Fond du Lac, Wis. — Gloxinias should not be taken up, but the pot should be laid on the side to ripen off the bulb. If the bulb shows signs of shrivelling, it must have water enough to prevent it. We hope soon to give a full article on these beautiful flowers by a very successful cultivator.

J. C., New Haven, Conn. — No special application of chemical or other fertilizers has been found effectual in counteracting the tendency to lose the foliage and crack, in the case of the White Doyenné and Flemish Beauty pears, and others similarly affected. The White Doyenné, when well cultivated in *sheltered city gardens*, is as fair as ever, but some such specimens which we have tasted were inferior in flavor to smaller and comparatively rough ones grown in our own garden.

R. U. — Rhubarb is commonly propagated by division of the roots, and autumn is the best time to do it, as the plants start so early in the spring that it is difficult to do it in season. It is not usually raised from seed, except when it is desired to produce new varieties. A friend who had raised many new varieties, informed us that some of them when eaten produced vomiting as certainly as a dose of ipecac. It is well known that the plant contains much oxalic acid, and that death has been caused by eating the leaves when boiled as greens; but the quantity in the stems is not sufficient to be injurious. We sent some seeds to a friend in Kansas, at a time when transportation of the roots would have been too costly; and he was successful in producing excellent rhubarb, without any of the unpleasant emetic properties mentioned above. When the stalks are wanted for use, the flower buds should be removed; and this had been done to ours, excepting a few which escaped notice; but if seed is wanted, a few of the earliest and best flower stalks should be carefully saved.

E. O. — The double-flowering hawthorns are among the most ornamental of all our flowering shrubs. They are propagated by grafting or budding on seedling hawthorns or native thorns. When hawthorns are raised from seed, the seed should be planted as soon as ripe, and will then not come up until the second spring. You will find an interesting article on working hawthorns on the pear or quince in our Vol. VIII., p. 185. The common single white hawthorn, the "snow-white thorn" of the poets, and the single scarlet are both beautiful. The variety commonly called double scarlet, is deep pink rather than scarlet. There is a "new double scarlet" thorn, of much more brilliant color than the old one. We have seen the flowers of the common native thorn prettily streaked with red; but in every case they appeared to have been injured by an insect.

T. S. — The European yew makes a compact bush; but though it will stand an ordinary winter at Boston, some of the largest plants we have known were destroyed by a winter of more than usual severity. The American yew is, as respects foliage, quite as beautiful as the European, and the berries are pretty, but it makes only a straggling, almost trailing, bush. The Irish yew is a variety of the European, making an upright column, and is cultivated here in pots for ornamenting terraces, etc. Fine specimens can be seen at Mr. Hunnewell's Italian garden, Wellesley, Mass.

T. G. — If we were going to plant strawberries for our own use *here*, we should choose Jenny Lind for early, Hovey for medium, and President Wilder for later, with Lennig's White for its superior flavor. Of this variety, a correspondent of the Horticulturist has well remarked, that in point of flavor it is among strawberries what the Seckel is among pears, or the Delaware among grapes. It must have good culture, but the soil must not be too rich, else the plants will run to vines rather than fruit.

If you want some very large, showy kinds, plant a few of River's Eliza, Russell's Prolific, General Havelock, Bijou, Duc de Malakoff, Lucas, Quinquefolia, or Napoleon III. Of the last two, you must be sure to get the true kinds, as spurious sorts are sold for them, and the same may be said of Hovey. The true Hovey has peculiar foliage — deep brilliant green, with the veins contracted, so as to give the leaves a crumpled appearance.

T. P., Cedar Rapids, Iowa. — Without having tried it, we should suppose that you could make vinegar from your green unripe grapes and wild crabs, as we know you could from the green unripe apples, without adding sugar or molasses; but it would not be of as good a quality as with the addition of these, or as if made from ripe fruit. We should advise you to keep your apples and crabs as long after picking up as possible without rotting. As to the question of profit, that depends upon too many circumstances with which we are unacquainted for us to give an opinion.

HYDRANGEA OTAKSA.

By Robert Buist, Philadelphia, Pa.

I have, the past five years, grown and distributed a hardy double-flowering shrubby Hydrangea under this name, which has of late received much public attention. When in Europe the past year, I found that there was considerable doubt as to the identity of this plant. I also discovered that my plant was *Hydrangea stellata fl. pl.*, and being desirous of giving your readers the correct authority of the plants, I addressed a note on the subject to Mr. Thomas Hogg, than whom there are none more honorable, or who have a better knowledge of Japanese plants. Our country will ever be indebted to him for the vast collections he has introduced from that country. If you consider his letter an object to your readers, please give it a place.

"Brooklyn, October 18, 1871.

"Dear Sir: Owing to my absence from home, I did not receive your favor of the 6th inst., until Monday evening. In regard to your inquiry as to the name and character of *Hydrangea Otaksa*, I have to inform you that you will find it figured and described in Van Siebold and Zuccarini's Flora Japonica. A copy of this work is at the Astor

Library, where I went yesterday and made an extract of the remarks (in French) on the plant, which I enclose for your information. In reading them, you will notice that the authors are very doubtful as to its being a true species. The figure so nearly resembles the *Hydrangea hortensis*, as to be hardly distinguishable from it; and if I might be permitted to advance an opinion on the subject, I should say they are identically the same. Like that species, the heads of flowers are a mass of ray florets of a blue color, as is often seen in *H. hortensis*.

"The species with double flowers, which you received from James Hogg, is *Hydrangea stellata*. This is also figured in the same work, and is unmistakable as to its indentity, although it may prove only a variety of some other species. When James let it out under the name of 'Otaksa,' he no doubt thought, for want of more positive information on the subject, that it was that species.

"I regret the error was committed, but console myself with the reflection that you have a more valuble plant.

"Yours truly, THOS. HOGG."

[WE have examined the plates referred to, in the copy of Siebold's Flora Japonica in the library of the Massachusetts Horticultural Society. The plate and description of *H. stellata*, show the petal-like sepals of the barren flowers increased in number from the normal five, to ten or even fifteen, the additional ones being smaller, and alternated with the lower ones, and all of oval pointed form, giving the flower a star-like appearance. The color is pale blue. *H. stellata* is figured on plate fifty-nine, and *Otaksa* on plate fifty-two of part first; the latter cannot be distinguished from *H. hortensis*. — ED.]

HYBRID PERPETUAL ROSE MRS. CHARLES WOOD.

By FRANCIS PARKMAN, Jamaica Plain, Mass.

AMONG the so-called "Perpetuals," there are but few that have any reasonable pretension to the name. One or two autumnal flowers are the best to be expected from many of them, and some refuse even this unless their flower buds are pinched off in June. Mrs. Charles Wood is less chary of her favors. In fact, we never knew her to fail in blooming abundantly in August and September, and this without the least curtailing of her June flowering.

In respect to vigor of growth, this variety is by no means remarkable. By the side of Madame Clemence Joigneaux and John Hopper, it is almost dwarfish; but it is hardy enough to bear a New England win-

Rose Mrs. Charles Wood.

ter, and its flowers are of the greatest beauty, being very large, well-formed, perfectly double, and of a rich and vivid red. The engraving is three fourths the natural size.

FRUIT GROWING IN KANSAS.

By A. M. Burns, Manhattan, Riley Co., Kansas.

I see very little in Tilton's Journal of Horticulture from the Banner Fruit State, the State that owns the eighty-dollar gold medal earned by some of our Kansas horticulturists. I have therefore concluded to give my experience with the "humbug" Missouri Mammoth Blackberry. I long ago learned to touch new fruits lightly, especially when they sell at two dollars per single plant, and only sent for two plants, one of which, on account of accidents, has given no fruit yet. The other did not ripen last season on account of dry weather in this locality, but this year, in addition to nine large suckers, gave a good crop, which commenced to ripen June 27th, and continued its fruit for three weeks. It is not of "mammoth proportions," but of fair size, and, to my taste, as well as others, of better quality than the Lawton, which, with its earliness, will induce me to increase the stock for home use; but it would be folly to attempt to sell the plants here of any fruit that has for its name "Missouri Mammoth," the prejudice is so great against it. I have seen it stated that the plants were taken from the forest where "all kinds" of seedlings were growing promiscuously. If this is so, I may have obtained a wild seedling of some merit. I have seen only a single commendation of this fruit, which was in the catalogue of a nurseryman, who stated that with him it was better than reports in other places made it. I would like to have the editor's experience, or that of any other person with this fruit, and particularly as to the time of ripening.

I must confess that I have a mania for testing new fruits; but I want to see them well tested in different places before they are distributed for fruiting. I have made it a specialty for fifteen years to plant seeds for the purpose of originating new fruits, but all my labor has been of little use, so far as fruited in exposed places; but this should not discourage others from trying. The novice may obtain a fruit in a few years that would make him wealthy; there is no harm in trying. I have no doubt that more desirable small fruits could be obtained in the forests or old fields, if noted when in fruit, and removed to favorable spots, than are cultivated. There were no wild blackberries in this region when I came here in 1856. I procured seed and scattered it in the woods. There are some among its produce that I intend to remove and cultivate. It is true they never can do me much good at my age, but oth-

ers in years to come may be benefited thereby. I have been in the habit of scattering small fruit seeds in vacant places; why cannot every young man do the same? I have a raspberry, whether a seedling or volunteer, I will not say, that when tested this year by over thirty persons, with the Doolittle, which it so much resembles, that they could not tell the seedling from it, and without knowing one from the other, a decided preference was given to the seedling; even children pronounced it more juicy, sweet, and spicy than Doolittle. Although it might be valueless in other places than *here*, I shall plant it for market and family use. Why cannot some beginners devote a little time and some ground to seedlings, and if they prove of no value except at home, still something has been attained? It may be that you will not make a fortune, but you will eat better fruit, originated by yourself, than you can obtain from any of the cultivated varieties. But never distribute a fruit under a name, simply because it will do well on your own grounds. There are too many, I fear, that are trying to obtain seedlings to push off on the world, and get rich thereby in a few years, regardless of whether they are adapted to the localities where they may be sold, and by pedlers who know and care nothing about their quality. This I suppose is not the case so much in the East, but the West is flooded with pedlers wherever they can find purchasers, and they find plenty among the honest but . . . class who do not take horticultural journals.

This has not been here what can be called a good fruit year. The strawberry crop was good; the raspberry about one third. The bearing canes of the blackberry have been cut off by rabbits, which are becoming so numerous that they are very destructive. Apples, peaches, and cherries, none, as the spring frosts destroyed them, as well as grapes, in some places.

I have not room to speak particularly of the different varieties of grapes, or the quality here, but there are many that do well, among them I might mention Anna, Amanda, Baldwin's Lenoir, Catawba, Cheowa, Cynthiana (not the Missouri), Concord, Creveling, Devereux, Dracut Amber, Garrigues, Hartford Prolific, Labe, Mary Ann, Norton's Virginia, Perkins, Saluda, Rachel, Taylor, Delaware, Rebecca, Clinton, Massasoit, Wilder, Agawam, and many others. Some of the new kinds promise well. I think the Eumelan will be a success. Some of these have to be covered in winter. The Isabella has rotted some; the Diana has never given a diseased berry. I might say that for the best success there must be different modes of cultivation. The Huntingdon is an "oddity." It will give about eighteen bunches of fruit to every foot of cane, nor have I yet given it any support, as it

stands like a bush; yet stakes or trellis may be of use to it in many places, and perhaps necessary in some. I think it does better in rich soil; the fruit ought to be thinned, as it sets an enormous quantity. It is early, although it hangs on the vines till frost, and improves with age. It is among the first that are good for cooking. It can be planted four or five feet apart, and the quantity per acre for wine would be enormous.

The largest grape I have, I think is the Empire, of which nothing is said. It is very late, and good for culinary purposes.

[We have never cultivated the Missouri Mammoth Blackberry, but have been told by good authority that the *true* sort is an excellent berry. It is said that the disseminators of it having found it take better than they anticipated, and having but a limited stock, and wishing to take advantage of the demand, went into the woods and dug up anything in the shape of a blackberry plant and sold it for this variety. Our correspondent may have got the true variety, or he may have got, as he suggests, a seedling of good quality. — Ed.]

CABBAGES.

By Alexander Hyde, Lee, Mass.

The cabbage (*Brassica oleracea*) is one of the oldest and most valuable of our culinary vegetables. It was a favorite with the old Romans, and our Saxon ancestors were so fond of it that they called the month of February "Sprout Kale." The original cabbage plant grows wild on the sea-shores of England and other parts of Europe, and, being inclined to sport, has become the parent of so many varieties, differing so greatly in their appearance and habits, that to many it seems almost impossible to trace them to the same origin. Besides the various sorts of white and red cabbages, which form solid heads, we have the coleworts and kale, which grow with loose leaves, various kinds of cauliflower and broccoli that form their flower-buds into a head, and the turnip-rooted cabbage (*Kohl rabi*), in which the stem swells at the base like a turnip, in one variety above ground, and in another under the surface of the soil. Some varieties are ready for eating in June, and others mature late in the fall, and keep, with proper care, till early cabbages come again; so that it is one of the recommendations of this vegetable that it is in eating order during the whole year.

When we consider the highly nutritious properties of the cabbage, we do not wonder that it has ever been esteemed by the laboring classes in all countries. Although the leaves average ninety-two per cent. and the stalks eighty-four per cent. of water, still there is probably no vegetable we raise (mushrooms excepted), in which nitrogen more abounds. Johnston estimates the flesh-forming constituents of dried cauliflower at sixty-four per cent. No wonder, then, that the Irishman, who is making large drafts on his muscles, loves a cabbage for his dinner; and in no way can he purchase for the same money so much nourishing food.

The impression is quite prevalent that cabbage is coarse food, adapted only to cattle and the laboring classes. While it is true that cattle thrive greatly upon cabbage, and laborers, by an instinct as reliable in its operations as the deductions of science, commonly esteem this vegetable above all others, yet it does not follow that the student should despise cabbage. It furnishes brain food, and that intellectual giant, Dr. Johnson, used to say, "Of all the flowers in the garden I like the cauliflower." Besides the nitrogen in which it abounds, there are found in its inorganic constituents the various alkalies, sulphuric and phosphoric acids, and chlorine. Because cattle love corn, squashes, and apples, it does not follow that men should reject these blessings.

"We cannot make something from nothing" is a maxim which all gardeners and farmers early learn, and it is especially applicable to the cultivation of cabbages. "Why do not my cabbages head well?" is a question often asked us; and in nine cases out of ten the answer is obvious. The soil is too poor. Market gardeners, who esteem cabbages one of their most certain as well as most profitable crops, manure very highly to obtain the large heads which we find in the markets. Mr. Henderson, of Bergen, N. J., one of the most successful cultivators, recommends for cabbages seventy-five tons of barn-yard manure. A ton of barn-yard manure is rather an indefinite quantity, as the weight varies so greatly; but whether a ton is more or less, there is no danger of manuring cabbages too highly. The soil best adapted to them is a clay loam. They should not be grown on the same ground for a succession of years, even when annually manured, as the insect which produces "club root" is apt to attack them. Lime and salt are among the specific manures for cabbages; but these are only adjuncts, and cannot be relied upon as a substitute for barn-yard fertilizers.

Among the varieties of cabbage, cauliflower takes the lead, as being at the same time most delicate and most nutritious. In warm, dry weather, cauliflowers are apt to send up branching shoots, which look

no more like the genuine compact flower than deer's horns look like roses. To secure early cauliflowers they must be planted early, well enriched, often hoed, and, if the weather is dry, abundantly watered. The most solid heads may be expected in October, after the autumn rains commence.

For an early cabbage of the common sorts we prefer the Wakefield; and a little later than this variety comes the early Winningstadt, with its spiral, hard head. For a general winter crop the Stone Mason stands unrivalled for uniform productiveness and market value. For family use, however, the Savoy, with its tender, well-flavored, wrinkled leaves, is as much preferable to the smooth-leaved varieties, as wrinkled sweet corn is to common corn. All the varieties make good pickles, but the Red Dutch is most sought for this purpose. This requires the richest soil and nicest care to develop good sound heads.

One of the most essential requisites to secure a good crop of cabbages is good seed. This is important in the culture of all vegetables, but especially so in the case of cabbages. Seed growers are not careful enough in the selection of the plants from which to propagate. We need thorough-bred vegetables as well as animals, and in order to secure them must discriminate in the choice of seed. To get the very best we must plant only large, well-shaped, hard-headed cabbages, and select the seed from the perpendicular stalk, pinching off the side shoots, so that the centre may receive more nourishment.

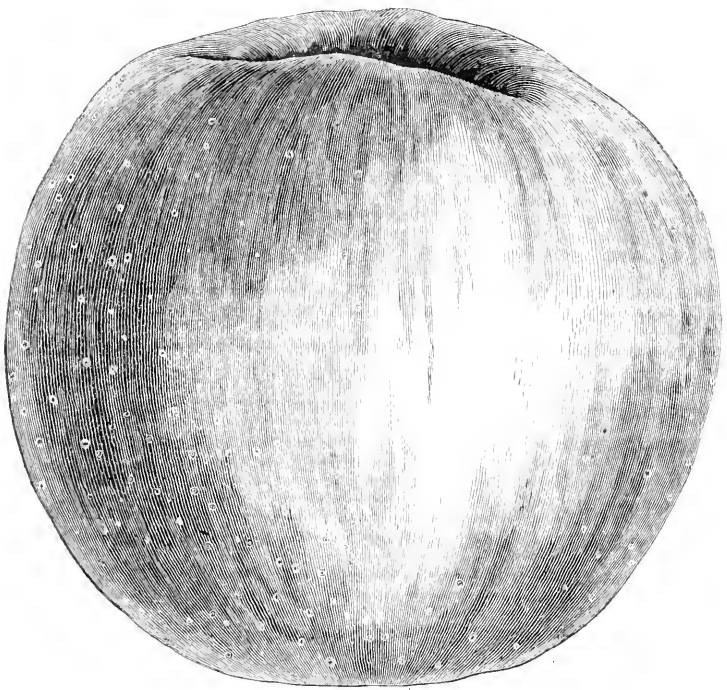
McAFEE'S NONSUCH.

Our figure and description of this popular apple, perhaps now more extensively planted in the West than any other variety, are from a specimen given us by Mr. E. A. Colman, of Lawrence, Kansas, whose extensive exhibition of apples is noticed elsewhere in this number of the Journal.

The size is large, form roundish, sometimes flattened, generally somewhat conical. Stem slender, in a very deep cavity, russeted within. Calyx small, closed; basin small and but slightly plaited. Skin yellow, nearly covered with streaks and marblings of red, and the thickest of the red broken through by yellow dots, each with a brown speck in the centre, and the whole covered with a heavy bloom. Core large and open, seeds large, dark-brown. Flesh yellow, fine, crisp, juicy, well flavored, and rich. Season, from October to February. Quality, "very good."

The tree grows vigorously, forming a round spreading head, and though it does not bear early, afterwards becomes very productive.

The history of this variety has been fully investigated by Dr. William M. Howsley, of Leavenworth, Kansas, who has ascertained that it is an old variety, which originated in the orchard of George McAfee, near Harrodsburg, Mercer County, Ky. As with every other good fruit which has been long cultivated its many synonymes attest its popularity. Besides the standard name, it is considerably cultivated in the West



McAfee's Nonsuch.

as Striped Winter Pearmain and Striped Sweet Pippin, and more or less as McAfee, McAfee's Red, Snorter, Striped Pearmain, Nonsuch, Teeke, Gray's Keeper, Large Striped Winter Pearmain, Park's Keeper, Wyandotte, Gray Apple, Indian, Winter Pearmain, Storr's Wine, Missouri Superior, New Missouri, Valandingham's Wine, and White Crow. It has also been called, erroneously, Hubbardston Nonsuch, and by some Ladies' Favorite, which last name is, in Tennessee, applied to the Buckingham or Equinetely.

VARIATIONS IN FRUIT.

Every one who has given attention to the different varieties of fruit, has soon discovered that specimens of the same kind vary greatly in different seasons and localities. We have often heard the remark that "pears vary much more this year than they ever did before;" when the truth was that the speaker had learned to be more critical in his examinations, and to detect differences which would once have escaped him. We know of limited spots where pears always come more russeted than a short distance away, and the pears from particular gardens will often show a peculiar character of smoothness or roughness, or will be otherwise marked. So much is this the case, that when it has been proposed to conceal the names of contributors to horticultural exhibitions, for the purpose of securing greater impartiality in the awards of premiums, it has seemed to us that, with a little experience, one could easily recognize the different collections by their peculiar characteristics. Indeed those who have not more than half a dozen trees of the same variety, will often find, even in the same garden, a marked difference in the habit of growth of the trees and character of their fruit. We might say that no two trees are precisely alike; but each one has an individuality, and from these variations, so slight as to be almost imperceptible to the most acute and experienced eye, there is every gradation up to the cases where the fruit from two trees of the same variety can only be recognized as the same by the best educated eyes, or perhaps not even by them. A remarkable instance of variation was described in the report for 1869 of the Fruit Committee of the Massachusetts Horticultural Society, published in our Vol. VIII., p. 42. And we recollect a very curious sport of the Bartlett pear, presented to the same society, by the late Captain Josiah Lovett, which was deemed so noteworthy, that an accurate painting was made of it. It was of medium size, covered with thick russet, and we do not think that the shrewdest pomologist would ever have suspected that it grew on a Bartlett tree.

We need much more extended observation to settle the question how far such variations as we have mentioned will be permanent, and we hope that all who may make any such will record and publish them. At present we cannot recall any really distinct variety produced in this way that has come into general cultivation, and it is our belief that much the larger part of the variations we have mentioned are of short duration when the plants are transferred to other soils or climates, or

stocks, or are liable to be exchanged for others equally fleeting. We will mention one instance of a Beurré Diel graft on a side limb of a tree on quince stock which produced fruit of medium size and excellent quality, entirely free from the cracking to which this variety is liable, but so thickly covered with russet that they were only recognized as Beurré Diels by the foliage. A graft of Bartlett in the centre of the tree produced fruit remarkable only for the excellence of the specimens. There was another tree with Beurré Diel in the top, and some limbs of Jaminette below, which we thought we would make into Beurré Diel, so as to have the tree all alike. So we took some grafts from the limb which bore the russet Diels, and some from a tree which always gave the ordinary green ones, and grafted into the Jaminette, marking both carefully. The result was that the fruit from the russet grafts was decidedly more russety than that from the other grafts, but far less so than that borne on the limb from which these russet grafts were taken, and in a few years this distinction faded wholly away.

The Beurré Diels produced on walls in England differ so much from those borne on standards, that a plate of both is given in the Pomological Magazine, and no one would ever suspect both to be portraits of the same variety. Yet we have no doubt that this great difference would disappear with the circumstances which produced it, and that if a graft taken from the standard were trained on the wall, the fruit would soon assume the same character with that produced by other wall trees, and *vice versa*.

We have said that we know of no instance in which any variety produced in this way has come into cultivation as a permanent variety. Perhaps we ought to except the different striped varieties of pears, such as the Striped Long Green, Striped Saint Germain, and Striped Rousselet, which have been many years in cultivation, and the more modern striped varieties of Duchesse d'Angoulême, Madeleine, Beurré d'Amanlis, and perhaps others which we do not now recollect. The streaking of the green with yellow extends to the wood as well as the fruit, and as there is no striped variety of which there is not first a plain one, and as the departure from the plain variety is uniform in all, it appears almost as if they must be artificial productions. This supposition seems impossible, however; and though we have no certain knowledge that they originate in accidental variations, we cannot account for them otherwise. We know no reason why they should not originate in this way as well as the many variegated-leaved plants which have within a few years become so fashionable, and with which they have one point in common, the variegated leaved plants and striped pears being less vig-

orous than the plain ones; but in no instance have we known the variation in the color of the fruit and wood of the pear to extend to the leaf. We have had a Red Astrachan apple whose leaves were spotted with white, and this variation was perpetuated by grafting, but the fruit was not affected in any unusual manner. There is a blotched-leaved Turkey apricot, said by Downing to be a true variation of the Turkey, but by Thompson, to be a sub-variety of the Roman, from which it would appear that there must be two varieties.

We hope that any of our readers who are in possession of facts bearing on this interesting subject in any direction, will do us the favor to communicate them.

APPLES IN CONNECTICUT.

By William H. White, South Windsor, Conn.

Like all other crops, apples are a variable, uncertain crop in this state. In some localities the crop is much better, generally, and surer than in others. Within the memory of the middle-aged, apples in the vicinity of the river, in towns lying within a few miles of Hartford, were a sure and certain crop, as much so as any other crop of the farm; then every farm had apple trees on it, usually but few planted in the same lot, and those wide apart, or not near enough to interfere at all with each other; and, as a general thing, a failure to grow sufficient apples for all necessary family uses, green in summer, to dry for other seasons, and a good stock put up in the cellar to last through the winter, as well as enough others, not desirable for these purposes, to make from six to twenty or thirty barrels of cider, was almost an unheard-of circumstance. Now, with as large a number of trees, more collected together, and of different and more refined quality of fruit, the exception appears more to be, to get apples enough, once in two, three, or four years, to have a good family supply, and to make three or four barrels of cider.

Why this difference, or falling off? is a question that a large number would like to have solved, but one that is not within the scope of this article to answer; but perhaps a few random thoughts, plainly stated, may set others thinking, and lead to more extended investigation and experiment.

Our people are of that class, generally, that prefer to devote their energies to crops that they understand, and can be pretty certain of harvesting and turning into money or domestic use; and many, too many,

think that if they plant a few trees, and give them a little attention and care, for a few years, till grown to fruiting size, they have done all that is required. "My father grew apples without half as much care as I have given my trees, and had them in plenty, and if I can't grow them so, let them go." This is the import of, if not their exact words.

Different soils vary in composition and capacity; so also vary the requirements of different varieties of apples. The soil that will furnish all the requirements of a certain variety, to the production of abundant fruit, may be inadequate in some respect for a different variety, under the same care, etc.

That our improved varieties can be made profitable with the same care awarded by our fathers to their orchards of natural, extremely hardy fruit trees and fruit, is simply impossible; and the sooner our people act upon this fact, the sooner we shall master the science of apple culture. Varieties must be selected, for planting, that are adapted to the climate and soil; and these must be *well* planted. in soil well drained, either naturally or artificially, and of at least moderate fertility, and kept cultivated till they come to bearing size: shallow culture only should be adopted where the roots extend, no matter how deep otherwhere, and no exhausting crops of grain or other kind should be allowed in the orchard. Trees should be set far enough apart so that their limbs may never reach each other.

When the trees attain the bearing size, the orchard may be laid down to clover, and pastured to sheep or hogs; no other stock should be allowed the range of an orchard. The soil should be kept rich by top-dressing with mineral, rather than animal manures, and the turf loose; encourage the roots to run near the surface, as from the surface they receive the better and more immediate influence of fertilizers applied, heat from the sun, and moisture from rains, etc.

The location of an orchard is an important consideration. The aspect should be rather a north-eastern, with a gentle slope, than any other, as this is found the best, so far as the writer has observed.

An orchard about twenty years planted, consisting of a number of varieties of our improved apples, is called to mind, which seldom, if ever, has failed since coming into bearing, is planted at the summit of a rise of ground descending both east and west; the orchard is on the portion descending to the east; the descent is quite gradual to low, moist soil traversed by a small stream of water. The soil is a gravelly loam, underlaid with a porous, gravel subsoil. Trees are planted some two rods apart in the rows, and rows four to five rods apart. The ground has for a large part of the time been cultivated to a variety of farm

crops, was planted on soil lately cleared from forest growth, and has woods growth on the north and south of it, the cleared portion being not more than forty or fifty rods wide. The trees are all healthy and remarkably free of insect enemies, fruit very fair and of good size, and altogether the best orchard of fruit that the writer has seen of late years. The fruit is as handsome and of as good eating quality as any apples we get from the best orchards of the West.

If it would not make this article too long, I should like to add the experience of Mr. Perry Smith, of Hartford, in managing an apple orchard, as related at a farmer's club meeting December 10, and reported in the Connecticut Courant of December 11, 1869, as follows: "When he bought his place in Commerce Street, thirty years ago, there were three apple trees upon it — one the Goodwin apple, another the Fall Pippin, and the third a sweet apple. All the fruit that came from these was nervy and scaly. Though he had no practical knowledge of horticulture at that time, he instinctively went to work to put the trees in better condition. The bark was covered with mosses, etc., and twigs grew thick on every limb. He first cut away the surplus wood, — the big branches, which were crowding, — and used a fine, sharp saw; never used an axe, and cut close down, for if a stump of a limb is left it will gradually decay. The fruit spurs on limbs he broke off, and the ground was literally covered with them. Then he scraped off all the loose bark, under which worms will always be found, and made a wash of lime, soft soap, etc., and applied. The ends of the larger limbs were covered up with wax so as not to permit the escape of sap. He did this work himself — didn't hire a man to do it, and then have it half done. The first tree was the Fall Pippin, and the next year the fruit was handsome and fair; it had none of the seams and nerves which attracted his attention the year before. The second year he picked forty bushels of apples from this tree. Previously the pippins had weighed less than half a pound apiece, or about that at the best; but some of them, after the tree was brought up to a good state of culture, weighed twenty ounces; and he took twelve apples to the county fair, in 1842, which filled a peck measure. The trouble with fruit growers is, that trees are planted too close together; or, if not, are allowed to weave their branches one with the other, gathering wood from year to year, till they scarcely produce anything. He mentioned two orchards, in particular, in this vicinity, which show neglect of this character."

This is the way to grow apples. They must have an interested cultivator, for no delegated care can equal in success self-interest. When we get to cultivating apple trees as thoroughly and with the same inter-

est that the tobacco grower cultivates his tobacco, we shall have apples as surely as we have fine crops of tobacco.

The concentration of orchards tends to, and does, concentrate insect and other enemies; these we have got to study and fight, as "eternal vigilance is the price of *good apples.*" The canker-worm has, for several years, greatly injured the apple trees in Hartford and vicinity; this insect is less troublesome away from the city, on the east side of the river. In Hartford and across the river, in passing along, I have noticed that orchards looked as if fire had run through them; one orchard in particular, in the south part of the city, I saw, where the trees stood so as to cover the ground, and, from a distance, not a green, fresh leaf could be seen.

On the east side, away from the vicinity of Hartford, the pests of the orchard consist of the caterpillar or bag worm (*Clisiocampa Americana*); the Curculio (*Rhynchænus Nenuphar*); the borer (*Saperda bivittata*), and the apple-worm (*Carpocapsa Pomonella*), and a few of the apple maggot. These, with a little attention, if acted upon in concert, might be effectually cleared out; but without concerted action it is impossible to be wholly rid of them, although their ravages in particular orchards may be greatly checked.

THE VICAR OF WINKFIELD PEAR.

By D. W. Lothrop, West Medford, Mass.

This pear is known to the most of cultivators; but few, I think, know how good it is. Taking it in all its characteristics, not many pears have been so much condemned or so much praised; praised by those who have had patience with it, and condemned by those who have not known how to treat it, or whose soil is not favorable for its proper maturity before hard frosts set in. Some have discarded it; others have thought it — considered in all its relations — though not the very best, one of the most profitable winter pears for the table. It has long been in the gardens, and every one has something to say of it.

At the meeting of the American Pomological Society in 1867, the following comments are reported on it: "Dr. Claggett said it was worthless; Husmann, that it was poor as a turnip; Heaver, the best winter pear he had. Dr. Warder said it was an excellent baking pear,

though not valuable for dessert. Dr. Sylvester said it was good for cooking. The President said it was a productive and valuable pear, of moderate quality; valuable for baking."

Also at the same society in 1864, we make the subjoined extract: "Field said his family cooked no other pear, and, when ripe, ate no other; Beadle, it was useless and worthless with him. Thomas said in warm autumns it was pretty good, not otherwise. Downing never saw it fit to eat, but the best of all cooking pears. Hovey said it was not first rate, but desirable. Sold well in market."

One prominent reason, it may be presumed, why the Vicar with some cultivators gives so poor satisfaction, is the want of full ripening, or proper maturity on the tree. This may be the case in a wet season, or where the tree is in a low or cold position, or where the soil is so rich and the growth so rapid and so late as to preclude the proper time, after growth is checked, for the fruit to be so influenced or developed before picking as to insure goodness at the time of ripening in mid-winter. With a medium rich, dry soil, and a sunny position, I think there can be but few instances of failure (where the trees are of fair age and the seasons not very wet) in making this pear valuable for the table. Although the Vicar is a splendid grower, it will not, like some pears, give good quality in small specimens; and hence it must have a deep soil, so as to bring up the fruit to good size, for all others are generally worthless. Thinning the fruit will also tend to a desirable development.

The Vicar should usually be left hanging till the middle of October, or even later, till the severe frosts begin to threaten, and placed in boxes or barrels in a good cellar, or packed in or covered with straw; and by January they will be fit to eat. If wanted sooner, place them in a warm closet or room for ten or fifteen days. In fact, it will improve them always to do so.

My own Vicars have been excellent — nearly as good as the Duchesse. Undoubtedly warm, dry seasons have had something to do with this, although the tree on which they grow is in a warm, deep soil, and well exposed to the sun. I consider this pear very valuable (though I have thought differently) from the fact of its vigorous growth, its late keeping, — never rotting at the core, — its delicate and peculiar aroma, together with its commendations above, to say nothing of its excellent cooking qualities.

American Pomological Society. — In our notice of the meeting of this society in our last number, we omitted to say that the donation to the society of the hundred dollar premium gained by the Nebraska collection was made with the understanding that it should be appropriated towards procuring a medal for the future prizes of the society. A resolution appropriating this and other similar donations to this purpose was accordingly adopted, Hon. J. B. Whitehead, of Norfolk, Va., who offered it, explaining that his idea was to put the likeness of President Wilder on the medal.

The president, in his address, again commended to the attention of the society the importance of originating new varieties of fruits, both as a means of improvement and as a substitute for those which have experienced the decline incident to all things of human origin. His remarks on the best means of originating fruits adapted to culture in the Southern States are so excellent and so appropriate, that we copy them here.

"The increasing interest in the cultivation of fruits at the South induces me to offer a few suggestions in regard to the best means of obtaining varieties suited to that region. Of apples and peaches, a large number of superior varieties have already been produced at the South, perfectly adapted to that climate; but the supply of fine varieties of the pear is as yet inadequate, especially of late-keeping varieties, as the latest kinds grown in the North cannot, when grown in the Gulf States, be preserved beyond autumn. To supply this deficiency, we would recommend the trial of such varieties as refuse to ripen at the North — Chaumontelle, the Colmar and its sub-varieties, Beurré Rance, Bergamotte Fortunée, which appear to need a longer season than ours to arrive at maturity. These, and seedlings from these, offer, we think, the best prospect for a supply of

late pears in the warmer parts of our country. We would also recommend a trial of the sorts used at the North for cooking, as some of these have proved fine dessert pears in the South. And probably some of the fine old varieties which have decayed at the East, and show signs of the same fate at the West, may in more genial climates have their existence so far prolonged as to be among the most desirable."

In the discussion on the fruits peculiar to the South, the Brown Turkey fig was recommended as successfully cultivated in Georgia, Florida, and Alabama, Colonel Hardee stating that it withstood transportation well, keeping ten days or a fortnight. The Celestial was recommended for the same states, Black Ischia, Brunswick, and Green Italian for Georgia and Florida, and the Lemon and White Nerii for Georgia, the latter being pronounced by Mr. Berckmans the best of all the white figs.

Of pomegranates, the French Sweet, Large Sweet, Violet Fruited, and Common Sour were mentioned as among the best varieties. The Mandarin and Blood Oranges were recommended as profitable and popular in Florida. Mr. Berckmans said that olives were perfectly hardy, and produce very fine fruit, both in Georgia and South Carolina.

Kansas Apples. — Bostonians have this year had an opportunity which they have never before enjoyed of seeing some of the famous apples of Kansas, a fine collection, of more than one hundred varieties, having been exhibited by Mr. E. A. Colman, formerly of Boston, but now residing near Lawrence, Kansas. When we inquired of Mr. Colman which were the best varieties, he replied that they were all good; there was not an undesirable kind among them; which is more than can be said of any hundred varieties grown here. Still, "all deacons are good, but there's odds in deacons," and so some of Mr. Colman's apples are better than others; and among the best are the Hay's Wine, ripening from October to February; Ortley, or White Bellflower; Yellow Bellflower, of which the specimens were very fine — we thought the finest in the whole collection; Father Abraham, very rich and high-flavored, fine-grained, solid, and long-keeping; McAfee's Nonsuch, which is grown more extensively in the West than any other now planted, and is of fine quality; Winesap, a certain bearer every year; Kansas Keeper, of which the same may be said, and which also bears very young; Jonathan, also an early bearer; Fulton, a large yellow apple, and one of the best; and Lady Finger, a most magnificent winter apple. Rhode Island Greening is much larger and richer than when grown here. We also noticed fine specimens of Northern Spy, Fallawater, Pound Sweet, Roman Stem, Westfield Seeknofurther, and others. A gratuity of a silver medal and fifteen dollars was awarded to Mr. Colman, and a silver medal to his daughter, Miss Alice Colman, who assisted in arranging this large collection, for her pomological knowledge and skill.

Mr. Colman informs us that the apple trees in Kansas generally grow more upright and spread less than here. He plants his orchards by setting a root graft, made the previous winter, just where he wants the tree to stand. Of summer apples he finds the American Summer Pearmain and Early Harvest best.

Cutting off the Roots of Hyacinths. — The inquiry of a correspondent has reminded us of an article on this subject in the first number of this magazine, for which it was translated from the Revue Horticole. It appears that in 1864, "M. Vavin exhibited at a horticultural show in Paris two hyacinths grown in water, in full growth early in November. The leaves and the roots, as is usual, grew before the flower-spike. He then conceived the idea of cutting off the roots about an inch below the plate of the bulb. In a few days the flower-stem developed wonderfully, while the plants with abundance of foliage bloomed badly. The fact seemed worthy of notice; but the season was too far advanced to permit of experiments on different varieties, and the experiment did not seem sufficient to warrant the adoption of a new mode of culture.

"The next year the experiment was tried with many varieties, and the experience of the previous year fully confirmed, in every case the finest blooms having been developed from bulbs of which the roots had been cut off, they being grown side by side with bulbs of the same variety with uncut roots. The latter, in many instances, failed, as is usual, to develop a flower-spike, and in others formed only an imperfect one.

"From these experiments, the following rules of culture are deduced: 1. To allow the flower-stalk to develop in a cool and perfectly clear vessel. 2. When the stalk is about three inches high, if it is well-formed, expose the plants to a great heat. 3. If the leaves develop faster than the stalk, cut off the bunch of roots about an inch below the base of the bulb."

We consider this an instance under the general law, that when an injury is inflicted on a plant, it immediately hastens to secure the continuation of the species by perfecting the seed, the formation of flowers being of course a necessary step in this process. The flower of the hyacinth is perfectly formed in the centre of the bulb, and only needs for its development a little heat and moisture. But if it is desired that the same bulb should flower for successive years, it must be planted in the earth, and the roots must be retained, to draw up from the soil each season the nutriment required to form the flower stalk for the next. The water, it will be understood, supplies all that is necessary for pushing into bloom the flower buds already formed, but not for forming new ones. When grown in water, no loss is sustained by cutting off the roots, as the bulbs are in any case worthless for future flowering without several years of careful nursing to restore their exhausted strength.

It will be remembered that our correspondent "Priscilla Primrose," in the October number of the Journal, gives an account of a successful trial of this experiment, of which she had somewhere read — probably in this very article.

Potash Salts. — The Rural Carolinian contains an interesting article by Professor Charles W. Shepard, Jr., on the potash salts of Stassfurt and Anhalt, including the kainite, which we have before noticed. Professor Shepard says that in 1870 Mr. J. R. Dukes imported potash salts sufficient to furnish several per cent. in a quantity of complete manure for agricultural experiments. These experiments, which were conducted in the light sandy soil of the seaboard, were eminently successful.

How the Editor of the Gardener's Monthly would plant a Fruit Garden. — The editor of the Gardener's Monthly has often complained that his peculiar views in regard to the cultivation of fruit trees have been misrepresented. We therefore copy the following directions for planting a fruit garden from the October number of that journal, that all our readers may know exactly how he proceeds. He does not, however, mention any instance in which this plan has been successfully tried, and we wish it distinctly understood that we do not recommend it.

"We feel that the advice constantly given to subsoil and underdrain, and manure to the extent of hundreds of dollars per acre is too costly to follow, and of little use after it is taken. If we were going to *prepare* a piece of ground for an orchard, we should manure it heavily, and put in a crop of potatoes; then in October manure again lightly, and put in rye. On this, in April, we should sow red clover. The rye off, we should then consider it ready to plant trees. For apples, pears, plums, or cherries we should mark out the rows ten feet apart, and for the trees ten feet from each other. This will be twice as thick as they will be required when full grown, but they grow much better when thick together; and they will bear more than enough fruit to pay for the room they occupy before the time comes to cut every other one away. We say the rows ten feet apart, but every fourth row should be twelve feet, to afford room to get between the blocks with a cart.

"Plant as early in October as possible, but it can be continued until the approach of frost. To plant, a hole can be dug in the stubble just large enough to hold the roots without cramping them. We should tread in the soil, and trim in the head very severely. The next spring we should just break the crust formed by the winter rains about the tree, and then leave everything to grow as it might. The clover will be ready to cut in June or July. The twelve feet rows may be done by machine, the rest by hand. Hay enough will be made to pay for all the labor in one year and a little more. After the hay has been hauled off, bring back some rich earth of any kind, and spread about a quarter or half an inch thick over the surface of the ground disturbed in making the hole. This will keep the grass from growing very strong just over the roots. Keep on this way annually, every two or three years giving the whole surface of the orchard a top dressing for the sake of the grass, and it will be found to be the most profitable way of making the orchard ground pay for itself until the fruit crops come in, that one can adopt. The trees also will be models of health and vigor, and when they commence to bear will do so regularly and abundantly. This is an epitome of what the Gardener's Monthly has taught, opposed as it has been by the excellent men of the old school of culture. No one who follows it will ever abandon it for any other. It is costless, comparatively, from the first to the last, and pays its way at every step.

"The dwarfer fruit trees we would plant on the same system, but six instead of ten feet apart. Few soils are *too wet* for fruit trees. Only in wet soils plant *on* the surface, and throw up the earth over them from between, so as to make a ditch or furrow to carry away the surface water. On the plan of annual surface dressings, which we have outlined, the feeding roots will thus always keep above

the level of standing water; and when they can do this, it will not hurt the trees though the *tap roots* are immersed in water for half the year."

The Grape Leaf Gall Louse. — We have received from our friend D. B. Wier, of Lacon, Ill., the following note concerning this insect, from which it appears that the mischief done by it is far greater than is commonly supposed, and we publish it, that the investigations which he suggests may be made: —

"Are you Boston men *lousy?* Our grape vines are. My friend Riley, entomologist of Missouri, has discovered the most astounding fact — and personal investigation proves it to me — that the reason why certain varieties of the grape vines, and especially the foreign, do not thrive, is owing to the universal prevalence of the vine root louse (*Phylloxera* of the vine it is called, I believe), the same thing that forms galls on the leaves of the Clinton grape. The things (facts) are perfectly astounding. It is the same thing that spread from this country to Europe, and devastated the vineyards there. None but the most robust of our native vines can withstand it. This clears up many mysteries in grape culture. It has sent the Catawba under. Of course, like other things, it is worse in certain soils and localities, but Riley says that here there is less of it than anywhere else he has examined; but here I cannot find a vine, feral or cultivated, but what has these things, to a greater or lesser extent, feeding on its terminal roots, pumping out the nutrition the vine has stored up in them for next year's growth. It would be well to investigate this thing in your neighborhood. Wherever the rootlets of a vine are knotty and swollen, there are the lice easily seen with a common lens. The foreign grape would certainly thrive here if it could be kept free of these lice."

Marengo Crabs. — Messrs. C. Andrews and Herendeen and Jones have sent us specimens of "Marengo Siberian Apples," No. 4 (synonyme Marengo Crab). They remark in the note accompanying them that "the whole group of Marengo Siberians, four in number, are similar to these, differing only in season, the latest keeping through the whole winter and spring. We think you will agree with us that a group of new fruits, like these, very productive, and thoroughly hardy in high latitudes, must be a valuable addition to American fruits."

These apples are of medium size for a crab, and, like most crabs, very pretty, and certainly of remarkably delicate flavor, and free from the harshness of the ordinary crabs. The skin is very thin and delicate. Still, all other things being equal, we must prefer a good-sized apple to so small ones, and hence we must repeat what we have said on a former occasion, that while we should certainly plant these crabs in a climate so cold that we could not raise the larger apples, we cannot advise planting them where the larger kinds can be grown. We have not tested them for cooking, canning, and drying, for which purposes they are claimed to be superior, but the general preference of a large fruit is even stronger for these purposes than for dessert, and justly so. Nor can we believe that their superiority to the Lady apple is such that they will supersede that kind, as is claimed. A single variety of the character of the Lady is sufficient, and it will be difficult to eject this one from the place which it has so long held.

An absurd idea. — General Pleasanton, of Philadelphia, it is stated, claims to accomplish wonders in vegetable and animal growth by the use of violet or blue glass. He remarks very truly that the violet are the chemical rays, but he overlooks the important fact that by using violet-colored glass he diminishes the very rays that he proposes to increase. No means are known to science by which we can increase the intensity of light in any portion of the spectrum. We cannot change red light into violet, or violet into red; the only change we can make is to cut off a portion of the rays; but in so doing we diminish the intensity of the remaining ones to a greater or less amount. The only effect of the violet glass would be to cut off the yellow, orange, red, and green rays, without adding anything to the violet; in fact, the violet would rather be diminished.

Boston Journal of Chemistry.

Wier's Codling Moth Trap. — Mr. D. B. Wier, of Lacon, Ill., exhibited at the late meeting of the American Pomological Society a trap for destroying the codling moth, the invention of Mr. Thomas Wier. A committee, consisting of Charles Downing, Mark Miller, and P. T. Quinn, who were appointed to examine it, reported that "it is a simple and efficient means of trapping this destructive insect, without doubt the worst enemy of fruit growers." It consists of three or four old shingles (new ones will not answer) fastened together by a screw through the middle, the same screw fastening the trap to the tree. Some slight grooves were made in the first ones for the worms to crawl into, but a few straws between the shingles are found preferable. It appears to be one of those inventions at once so simple and so effectual, that every one wonders why he did not think of it before. A patent has been applied for.

Entomological. — Among the losses by the Chicago fire was the State collection of insects, made by the late B. D. Walsh, State entomologist of Illinois. It was deposited in the building of the Chicago Academy of Sciences, which in any ordinary fire would have been fire proof.

A Texas Garden. — Our fall garden is assuming a promising aspect. Dwarf wax, and other varieties of beans, planted the 1st of August, are now yielding an abundant supply for the table. Egg plants are abundant and large; four or five pounds are very common weights. Cabbage plants, that were sown August 1st, are being set out to afford a supply for winter. Onion seed is nicely up, to be grown during the winter months for a supply in April and May. As for fruit, peaches and grapes are past and gone in August. The only fruit we now have is persimmons — the largest and finest I ever saw. Soon a supply of apples will come in from the west by commerce. Apples are grown to some extent, but not to meet the demand. *Mrs. S. E. B.*

Clear Creek Station, Galveston Co., Texas, Sept. 18, 1871.

NOTES AND GLEANINGS FROM FOREIGN EXCHANGES.

Waltham White Primula. — Among the many forms of *Primula sinensis* we now possess — single, double, and of various hues — there are none which possess, in a greater degree than this, the features which are generally regarded

Waltham White Primula.

as indicating high quality, such as vigor of constitution, without coarseness, together with size and substance in the flowers, and purity in their color, which is a solid, unsullied white. The plant has a distinguishing peculiarity in the red petioles of its deep green leaves, which serve to contrast all the more forcibly with the pure coloring of the blossoms. The latter, which form collectively a bluntly pyramidal mass, are upwards of two inches in diameter, and on account of the substance continue for a long time in perfection ; they are opaque white, with

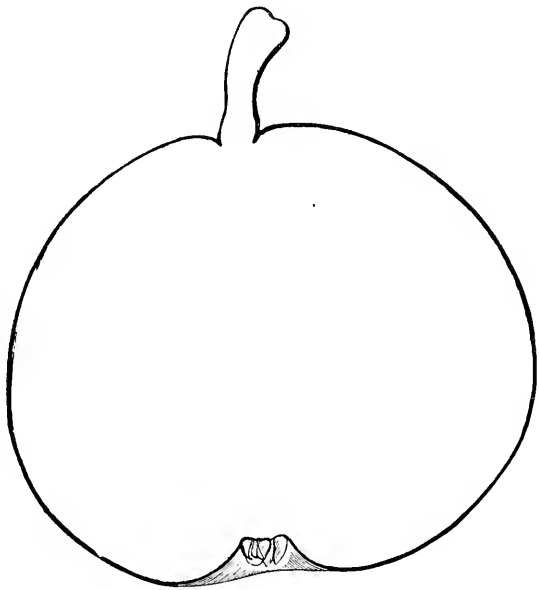
a large yellow eye. As a variety, this giant form of primula is perfectly distinct from all others we have met with. It has been unaccountably passed over at the South Kensington meeting, though shown on more than one occasion, but was awarded a well-deserved first-class certificate at the Regent's Park show in March last. The variety is in the hands of Mr. William Paul, of Waltham Cross, by whom it will shortly be distributed. *Florist and Pomologist.*

Renovating old Lawns. — In sowing grass seeds to mend an old lawn, the best mode of procedure is to have the bare places dug over and enriched with good rotten manure, and all the stones and lumps raked off preparatory to sowing. Then sprinkle the seed pretty thick, and cover with fine earth. It is a good plan, when the job is only a small one, to sift the earth over the seed; but when there is a large space to be operated on, the workmen have a few good heaps of fine soil, and throw it with the spade. In a majority of cases, old lawns may be revived by simply sprinkling with nitrate of soda two or three times in the season. The best proportion in which to apply it is at the rate of three pounds to one square rod. Lawns that were patchy and sour have with this dressing become soft and springy with the abundance of fibre produced, and the sward acquired a beautiful freshness and closeness of growth. Until we had used this large quantity, and patiently waited for the result, we advised the use of only one pound per square rod; and that we can say is enough to work wonders, but the dose should be repeated at least twice — say three dressings in all, in April, May, and June. On some lawns there is plenty of grass and no clover, and during very hot, dry weather, such lawns become burnt and unsightly, whereas clover does not quickly burn. To promote the growth of clover, any of the salts of lime may be used. Even siftings of lime core from the builders will be good as a top-dressing, but a quicker result may be obtained by the use of superphosphate of lime in the same proportions as we recommend the use of nitrate of soda — that is, from one pound to three pounds per square rod, according to the state of things to be remedied. *Floral World.*

Paulownia imperialis, cut down annually, is one of the finest subjects we have seen for the sub-tropical garden. If protected with mulching in the winter, the crown and root remain safe, and in the spring, if the soil be good, it will throw up a shoot of such robust character as would quite astonish those who have not seen it thus treated. To secure this giant growth, a single shoot only should be permitted to grow. We saw it thus treated by Mr. Sage at Ashridge Park during the past summer, and bearing leaves of fabulous proportions, with an aspect quite exotic. Where bold subjects can be introduced this may be confidently recommended. *Gardener's Chronicle.*

English Indian Corn. — The Gardener's Magazine of October 14th says, — "Yesterday some Indian corn was exhibited in the Liverpool Exchange News Room, where it excited great attention. It was grown at Birkdale, near Southport, and the plants were sixteen feet high, and five inches in the stem. The grains were as large and thoroughly ripened as if grown in the tropics." We suspect that it was forwarded by artificial heat when young.

April Pears. — I send for your inspection three or four pears, viz., 1. Olivier de Serres, 2. Fortunée de Printemps, 3. Louise Bonne de Printemps, 4. Bergamotte d'Esperen. No. 1 fruited here in 1869. It is a pear to be depended upon for March and April, as it is a good bearer, is quite hardy, and ripens well. Its flesh is melting, with a fine aroma, and is nearly or quite as good as Winter Nelis in December and January. It was raised from Fortunée de Printemps, or, as we call it, Fortunée.



Olivier de Serres Pear.

No. 2, from a wall in the garden of my son, at Harlow, ripens in February, and is of most excellent flavor, with an agreeable acidity very refreshing. The specimen sent is from a pyramid here, and not of so high a flavor. [This variety does not succeed in the northern part of the United States, but we advise a trial of it in the Southern States and in California, as likely to prove a valuable late pear in a longer and warmer season. — Ed. Tilton's Journal of Horticulture.]

No. 3 is a sort raised by M. Boisbunel. It is handsome, and much like its namesake, Louise Bonne d'Avranches, or of Jersey. This sort keeps well till May. It is simply melting or half melting, and sweet, without any aroma; it is, however, handsome, and well worthy a place in a spring dessert.

No. 4 is a well known and deservedly esteemed February pear. In my cool dry cellar it keeps well all through April. It is the hardiest and most abundant bearer of all our late pears, and deserves, like No. 1, universal cultivation.

Thomas Rivers.

[The fruit of Olivier de Serres, referred to by Mr. Rivers, is represented in

the accompanying figure. Unlike many of the pears which are recommended for their late keeping, it is one of unusual excellence, and is really worth growing in every collection. Hitherto Beurré Rance has been the variety on which the maintenance of a late supply depended, but its coarse and frequently gritty flesh contrasts unfavorably with that of Olivier de Serres.

The fruit of Olivier de Serres is of good size, round, and bergamot-shaped, a little uneven in its outline; skin entirely covered with cinnamon-colored russet; eye rather deeply sunk, rather large, and half open; stalk short and stout, inserted in a small cavity; flesh half buttery, sweet, richly flavored, and with a high perfume of musk or ambergris.

This is a delicious pear, and unusually rich-flavored for a pear at this late season. It was raised at Rouen by M. Boisbunel, who has been so successful in adding to the treasures of the fruit garden. The seedling tree first produced fruit in 1861.]

English Journal of Horticulture.

The Scarlet Larkspur. — Mr. Thompson, of Ipswich, sent me plants of *Delphinium nudicaule* some time in April last, for which I publicly thank him. Having heard much of the plant, it was with exceeding pleasure I found it to be peculiarly distinct and very beautiful, and well adapted for bedding in skilful hands. It produces arching spikes of flowers, of a curious shade of orange-red, and in form resembling those of the smaller kinds of tropæolums. The plant is not quite hardy, and snails are partial to it; therefore it is not adapted for "rough-and-ready gardening." It is, indeed, a charming curiosity for the experienced and discriminating amateur. *S. H., in Gardener's Magazine.*

Basket Plants. — The easiest and most effective basket plants are easily discovered. All the trailing *Tropæolums*, and especially those of the *Lobbianum* race, are suitable. *Campanula garganica* makes a beautiful blue fringe on the edge of a basket. *Pilogyne suavis* and *Mikania scandens* make elegant green wreaths four or five feet long. *Thunbergia alata* is peculiar, as well as elegant. There is nothing like it either in style or color. Then there are the ivy-leaved geraniums, and the pretty variegated geranium, called *Manglesii*, with petunias, verbenas, and *Lobelia erinus*, all suitable for baskets. *Floral World.*

Worms in Flower Pots. — Has any of your readers tried *mustard water* for the purpose of destroying worms in flower pots? I have, and found it to answer admirably. A teaspoonful to a gallon of water is sufficient. I have never known it to cause the slightest injury to the roots of the most delicate plant. I advise any one troubled with those pests to give it a trial. *Gardener's Record.*

Pyramidal Gooseberry Trees, etc. — The Gardener's Magazine contains an account of an avenue of thirty pyramidal gooseberry trees, sixteen feet in height, and an illustration of one of this height, and only eighteen inches in diameter at the base, looking as tall and slender as a church spire. In the same garden gooseberries are trained as standards, with stems five feet high. Small-leaved myrtles are clipped into pyramids eleven feet high, and twenty-one inches through the base — more like an obelisk than a pyramid, however.

BEGONIA CHELSONII. — The remarkably distinct and beautiful *Begonia boliviensis*, with its vermilion-colored petals, has, as might have been expected, given rise to a numerous progeny of hybrids, some of which are of a very ornamental character. The *B. Sedeni* was one of the first of these, while *B. Chelsoni* is another more recent production, and one of great beauty. Messrs. Veitch & Sons, by whom it was raised, speak of it very truly as one of the finest of the flowering begonias, a description which is indorsed by the first-class certificates awarded to it at the meetings of the Royal Horticultural and Royal Botanic Societies. It is the result of a cross between *B. boliviensis* and *B. Sedeni*, to which latter it will form a fine companion plant. It is of free growth, with erect branching stems, one-sided, shallow-lobed, narrow pointed leaves, and large drooping flowers, of a bright, glossy red. The plant, we learn, blooms on from May till November, so that it cannot fail to become useful for the summer decoration of the conservatory. *Florist and Pomologist.*

ANDROSACE CARNEA, VAR. EXIMIA, is a charming little Alpine plant figured in the Botanical Magazine, and described as growing in tufts of from six to twelve inches broad, of a lively green, formed of numerous almost globular rosettes, one inch in diameter. The flower is of a very fine rose purple color, with a yellow eye.

GATHERING EVERLASTING FLOWERS. — All everlastings should be gathered before they expand fully. To preserve the whiteness of the white ones, we suppose attention to the rule just given to be of the first importance, and, next, to keep them always protected from dust. The white everlastings of the shops are probably bleached by means of sulphur vapor. *Floral World.*

THE SULTAN PLUM. — This is a seedling raised by the Messrs. Rivers, from the Belle de Septembre, in 1864. It bids fair to be a valuable culinary plum, as it is large and excellent when cooked. Its productiveness is something astonishing, as every stem is covered with fruit, and it forms a compact and most fruitful pyramid. Its fruit is of a deep purple, shaded with bright red. The tree sent to us was no more than two feet high and two years old. It had on it six plums, each the size of a large Orleans, six inches in circumference, and like it, its season is August. Its dwarf pyramidal habit enables it to be planted in rows six feet apart, and four feet apart in the rows.

English Journal of Horticulture.

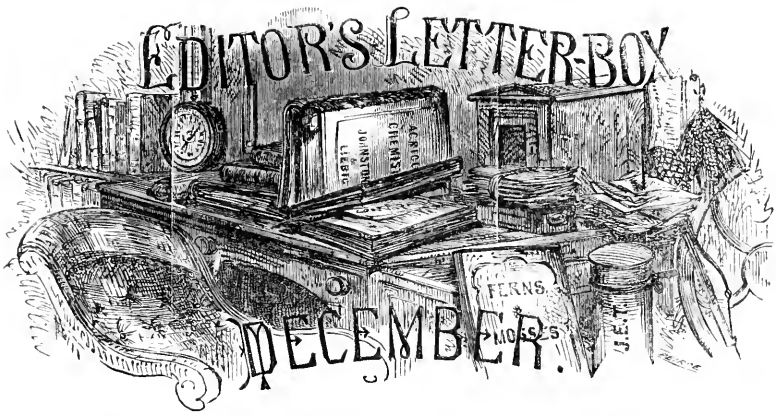
DESTROYING GRASSHOPPERS. — A correspondent of an Adelaide newspaper recommends to gardeners and others the following method of destroying the grasshoppers, which in some seasons commit great depredations in various parts of the colony: "The plan is to sow borders or rows of the common Larkspur in gardens; in vineyards it might be sown between the vines. The Larkspur has a very pretty flower, and the leaf is so green that it attracts the grasshoppers at once, and when eaten, is sudden death to them. I have seen them lying dead by thousands under the Larkspur borders in Adelaide." The writer adds that he has adopted this plan for years with much success.

Fruit Show in London. — The combined show of the Royal Horticultural Society and the International Exhibition on the 4th of October last is said to have been the finest fruit show in London since 1862. Nearly fifteen hundred dishes of apples, the same of pears, two hundred and twenty bunches of grapes, and a miscellaneous collection, including pineapples, peaches, nectarines, plums, filberts, and cobnuts were shown. Mr. Scott, of Merriott, sent two hundred and ninety varieties of apples; but the gold medal for the best collection of apples was awarded to W. Paul, who sent a hundred and seventy-one kinds. But few of the names are given, and the only American sorts we notice are Boston Russet, Rhode Island Greening, and Ramsdell's Sweet.

The prize for the best collection of pears was taken by Messrs. Baltet frères, of Troyes, France, who showed three hundred and fifty sorts, many of them magnificent specimens, and who also made grand displays in the classes of dessert and kitchen pears. Among the new pears shown the following are noted as particularly fine: Calebasse Carrefour, very large, De Loire, Prince Imperial, Passe Colmar, unlike our variety of that name, Passe Colmar Musqué, Doyenné Roux, Senateur Vaisse, Marie Benoit, fine, Belle de Septembre, large and good, Huyshe's Prince Consort, Prince Albert, Huyshe's Bergamot, Huyshe's Victoria, British Queen, Delices d'Aremberg, Beurré Baltet père, Duc de Morny, Souvenir de Leopold I., Marechal Vaillant, Crassane de Hardenpont, kitchen, General Laurent, Hélène Gregoire, Henri Gregoire, Beurré Lamy, Beurré Dubort, Verulam, and Tendron de Livrel — the last two kitchen varieties. Mr. Gardiner, gardener to E. P. Shirley, Lower Eatington Park, Stratford-on-Avon, showed a collection of forty varieties of pears, some of which were very fine. It gives one a new sensation to read of an exhibition of pears from this place, which we are accustomed to think of solely as the birthplace of Shakespeare. Some magnificent pears were shown from trees which had been grown fifteen years in pots. The English-grown apples and pears were, on the whole, decidedly below size, but those exhibited by the French growers were generally very fine.

Other fine new fruits were the Madresfield Court, Child of Hale, Mill Hill Hamburg, Muscat Hamburg, Gros Guillaume, Black Monukka, Buckland Sweetwater, Mrs. Pince, Kempsey Alicante, and Pope's Hamburg grapes. The largest bunch shown was a fine cluster of Barbarossa, weighing six pounds. Fine specimens of Golden Gem melon, Lord Palmerston, Salway, and Walburton Admirable peaches, some very fine pineapples, and a collection of twenty-one varieties of nuts and filberts were included in the exhibition.

Messrs. Carter & Co. offered prizes for collections of six varieties of American potatoes. Mr. Frisby, gardener to H. Chaplin, Esq., Blankney Hall, Sleaford, was first with King of the Earlies, Climax, Bresee's Prolific, Peach-blow, Early Rose, and Early Goodrich. Second came Mr. Garland, of Killerton, with the same kinds, except that Bresee's Peerless took the place of Peach-blow. All these, it is said, were large, but had an air of coarseness.



THE Editors of "Tilton's Journal of Horticulture" cordially invite all interested in the various branches of horticulture to send questions upon any subject on which information may be desired. Our corps of correspondents is very large, and among them may be found those fully competent to reply to inquiries in regard to any ordinary subject in the practice of horticulture. Any questions which may be more difficult to answer will be duly noticed, and the respective subjects fully investigated. Our aim is to give the most trustworthy information on all subjects which can be of interest to horticulturists.

We would especially invite our friends to communicate any little items of experience for our "Notes and Gleanings," and also the results of experiments. Such items are always readable, and of general interest.

We must, however, request that no one will write to the contributors to our columns upon subjects communicated to the Magazine.

Anonymous communications cannot be noticed: we require the name and address of our correspondents as pledges of good faith.

Rejected communications will be returned when accompanied by the requisite number of stamps.

MRS. A. M. G., Cresswell, Jefferson Co., Colorado. — The *Gardenia*, or Cape Jasmin, requires a mixture of loam and peat, and the stove kinds a strong, moist heat and plenty of water at the root.

The Tea plant, when grown in green-houses, is cultivated like the Camellia, to which it is closely allied, in equal quantities of loam and peat. Great care must be taken that the pots are well drained, and when growing freely they must have plenty of water. But we suppose you want to know about their cultivation out doors, on a large scale, and we must ask any of our readers who have tried this, or seen it tried, to tell you.

F. A. S., Montgomery, Ala. — 1. We find in an exchange the following directions for crystallizing grasses, and we suppose baskets and mosses may be done in the same way: —

"Almost any kind of grass looks well crystallized, but the long feathery grasses give most satisfaction, as they are ornamental when only partially covered with alum, while the others should be covered completely. When you have gathered all you wish, and dried them thoroughly, you can either crystallize them before forming them into a bouquet, or make the bouquet first, and crystallize it afterwards. If you wish to put the grasses into a vase with everlasting flowers, you must first put them into the alum solution, which is thus prepared: —

"Pulverize a pound of the best white alum, and dissolve it over a slow fire in a quart of pure soft water. Do not let it boil, and be very careful to keep everything out of the solution that can possibly stain it, for the beauty of the grasses depends on the pure whiteness of the crystals. A new earthen bowl is the best dish for the purpose. When the alum is all dissolved, let the solution cool down to blood heat; meanwhile arrange your grasses in a bowl, and pour your solution over them, cover up, and set away twenty-four hours; then take them out carefully, dry them in the sun four or five hours, and put them in the vase prepared for them. Do not move them for several days. If you form the grasses into a bouquet before crystallizing them, procure a glazed earthen jar, suspend the bouquet by a string from a stick laid across the top of the jar, — take care that the tops of the grasses are not bent or doubled over, — and then pour on the solution, proceeding as above directed. What remains of the alum water may be reheated, tinged blue or purple or scarlet by a few drops of dye, and used again as before.

"Crystallized grasses, when mixed with everlasting flowers, make beautiful winter bouquets. Snowdrops, or wax berries, the seed-vessels of wild roses, and asparagus branches, covered with their scarlet fruitage, may be used with fine effect. Many bright-colored berries may be gathered from swamps and marshy places, to contrast brilliantly with the metallic snowy lustre of the alum crystals. Of these none are more showy than clusters of bitter-sweet. Many ladies plant flowers in spring for the especial purpose of making winter bouquets. The varieties of *Helichrysum* are beautiful for wreaths, especially the dwarf species, *Ammobium elatum*, or White Everlasting, is very much in use for memorial garlands and crosses to adorn the graves of friends. The varieties of ornamental grasses are also very much in use for this purpose. The florists' catalogues contain a full description of them all, and any of our lady readers who another year wish to cultivate this particular branch of business will do well to consult these catalogues."

2. Skeleton leaves and phantom bouquets are made by macerating the leaves in water until the parenchyma is removed, and the fibres remain. We have not room to describe the process fully, but you can learn it from an excellent work on the subject, published by J. E. Tilton & Co. The price is two dollars.

3. We are not acquainted with the method of preserving flowers by covering them with a thin film. Can any of our readers give our correspondent the information?

4. Glue for envelopes is rather out of our line, but we believe it is either gum Arabic or British gum; the latter is made by calcining starch, and is much the cheaper of the two. Both can be obtained of druggists.

Mrs. S. E. B., Clear Creek Station, Galveston Co., Texas. — We are sorry to deprive you of the pleasure of attaching the name of your place to the pretty little fern of which you send a frond, but it is already named *Asplenium ebeneum*.

The best work for your purpose is Paxton's Botanical Dictionary, published in London. Gray's Manual, or his Field, Forest, and Garden Botany, is desirable in addition, and we think you would find Chapman's Flora of the Southern United States useful.

H. B. N., Owego. — One of the most extensive growers of the gladiolus informs us that he has no such trouble with Eurydice as you describe. The cause of the other varieties becoming less distinct in their markings, is probably, that the soil is too rich. You can keep the coleus and fuchsias in a room from 55° to 70°; the former is quite high enough even for the coleus at night, and fuchsias may be wintered in an ordinary cellar.

Incog. — The mountain ash is a species of Pyrus, and the pear grows well upon it, being closely allied. It has the effect to dwarf the pear somewhat. We have never known it tried, except on a very limited scale, but we think it worthy of trial, and advise you to try them as far as you can afford to. The mountain ash is subject to injury by the borer, and therefore should be budded low, so as to be covered in the soil like the quince stock. We have seen very fine specimens of the Winter Nelis grown on mountain ash stock.

Mixed Apples. — While picking my winter apples, in a variety orchard, I discovered some strange freaks in nature among my Rome Beauty apples. I have selected a half bushel of them, and cannot find any two apples alike in size, shape, or color. I find many in this lot that possess the most peculiar and striking characteristics of being crossed with the Northern Spy, Winesap, Roxbury Russet, Baldwin, and Smith's Cider, and the only conjecture I have to offer is, that it was done on the principle of hybridizing, through the instrumentality of bees or other insects carrying the pollen of one blossom to another during the season of bloom. Please state if the seed taken from these hybridized apples, and planted, will reproduce a variety possessing the quality, shape, and color of two varieties combined in one. If so, the Rome Beauty crossed with the Russet will prove a great acquisition. *W. W. H.*

Rutland, Meigs Co., Ohio, Sept. 28, 1871.

[The theory of physiologists is, that the effect of mixing the pollen of flowers cannot be shown until the seed from those flowers has produced plants; but sometimes facts like yours come up, showing the result of mixture in the fruit of the same season. We cannot tell whether these apparent mixtures will be reproduced in seedlings from them, though it appears probable, and we advise you to plant the seed, and try, as the only way of finding out. — Ed.]

MRS. J. H. B., Dyer Station, Lake Co., Ind. — The *Ismene* and *Phycella* both belong to the *Amaryllidaceæ*, and their culture is in general the same as that of the Amaryllis. The bulbs should be turned out of the pots in autumn, and laid on a shelf, or other dry place, until spring, when they should be potted, and introduced to the hot-house or green-house, giving them plenty of water as they progress. The soil should be equal parts of turfy loam, peat, and sand, and the pots well drained. The *Phycellas* are more hardy than some of the family, and in England are grown in pits, frames, or warm borders, with a slight protection in severe frost. We have never known either of these bulbs grown without the aid of a green-house, and if any of our readers have, we here ask them to communicate the information for your benefit.

E. S. B., Nassau. — Cut your hedge in the form of the letter A. The first cutting had better be done before it begins to start in spring, or at your leisure during mild days in winter. The summer cutting is best done before the shoots get so hard as to be cut with difficulty. Be sure to keep the base widest; if the sides are made perpendicular, they inevitably die away. You can get a hedge by planting the seed where you want the hedge, but it will be much better and more uniform if the seed is sown in beds, and the plants carefully assorted when two years old, or one year, if strong. We have always sown buckthorn seed in autumn, but if deferred till spring it should be carefully washed from the berries, and mixed with damp sand.

J. J. M., West Chester. — The chrysalis was too much injured to identify. If you will send us specimens of the insect another season, in its various stages, packed so as to reach us safely, we will try what we can do to name it, and tell you how to prevent its depredations.

E. E. W., Wakefield, N. H. — The "creeper" is *Echinocystis lobata*, or Wild Balsam apple. The generic name is from two Greek words, signifying *hedgehog* and *bladder*, and is therefore quite apropriate. The plant belongs to the *Cucurbitaceæ*, or gourd family, and is indigenous in low grounds in the northern and western parts of the United States.

R. W., Troy, N. Y. — The color of hyacinth bulbs generally corresponds to that of the flowers, that of the blue being darker than the red. A majority of the white-flowered kinds have white bulbs, but sometimes the bulbs are colored.

We regret to be obliged to say that the Peruvian seeds, which you were so kind as to send us, proved of little value. Some of them did not vegetate, and of those which did, the most noticeable was a morning glory, of poor quality.

SURPRISE. — Your late pears and apples ripen earlier on account of the warm, dry season. They were riper when taken off the trees than they are in average seasons when gathered, and nothing that you can now do will wholly counteract the effect which was gradually wrought in them all summer. Use special care to keep them at a *uniformly cool* temperature, and this is about all you can do.